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FRENCH WEST AFRICA . . . . .

By Pieter K. Roest*

French West Africa is of all tropical regions the nearest to Western Europe, and the first with which the maritime powers came into direct trading relationship. Its climate, however, has so far effectively prevented white colonization, so that it has remained a black man's country. Working from disconnected trading posts on the coast and from the desert in the interior, the French have consolidated their power throughout this area chiefly by peaceful penetration, after the resistance of a few desert tribes was broken.

Between the end of the first and the beginning of the second World War lie two decades of intensive administrative effort toward the mise en valeur, *or full economic development, of France's empire in West Africa. Rich in agricultural potentialities, French West Africa was expected to provide a large part of France's need for tropical products. In oilseeds, especially peanuts, this expectation was partly realized; for cocoa it was just beginning to materialize when war broke out; for cotton it has been so far, if not a complete failure, at least a considerable disappointment.*

The reason for the program's lack of success is that with few exceptions agriculture in French West Africa is not of the plantation type, but is based on native-owned and native-worked plots. Production therefore depends on arousing and organizing native initiative. With a population thinly spread over a vast wilderness, accustomed to cultivate a little land for its own simple needs and by its own primitive methods, the difficulties in the way of greatly increased production are obvious.

PHYSICAL BACKGROUND; THE PEOPLE

Location, Area, and Provinces

French West Africa lies in the lower half of the big "bulge" of Africa which juts out into the Atlantic Ocean, between the Western Mediterranean in the north and the Gulf of Guinea in the south. In the east it adjoins Southern Libya and the Chad (which forms the northern part of French Equatorial Africa); in the north it is bounded by Algeria - also French - and the Spanish possession of Rio de Oro. In the west and southwest its coastal continuity is broken by British Gambia (a thin wedge bisecting Senegal), by Portuguese Guinea, British Sierra Leone, and the Negro Republic of Liberia; in the south, British Gold Coast and Nigeria break up the French territory. Its separated coastal sections are united in the interior, however, by the plains of the Sudan and the Sahara. The Sahara Desert occupies most of the colony's 1,798,374 square miles. Almost all of its wealth and population are found in the Sudan and in the coastal segments, between 5° and 17° north of the equator.

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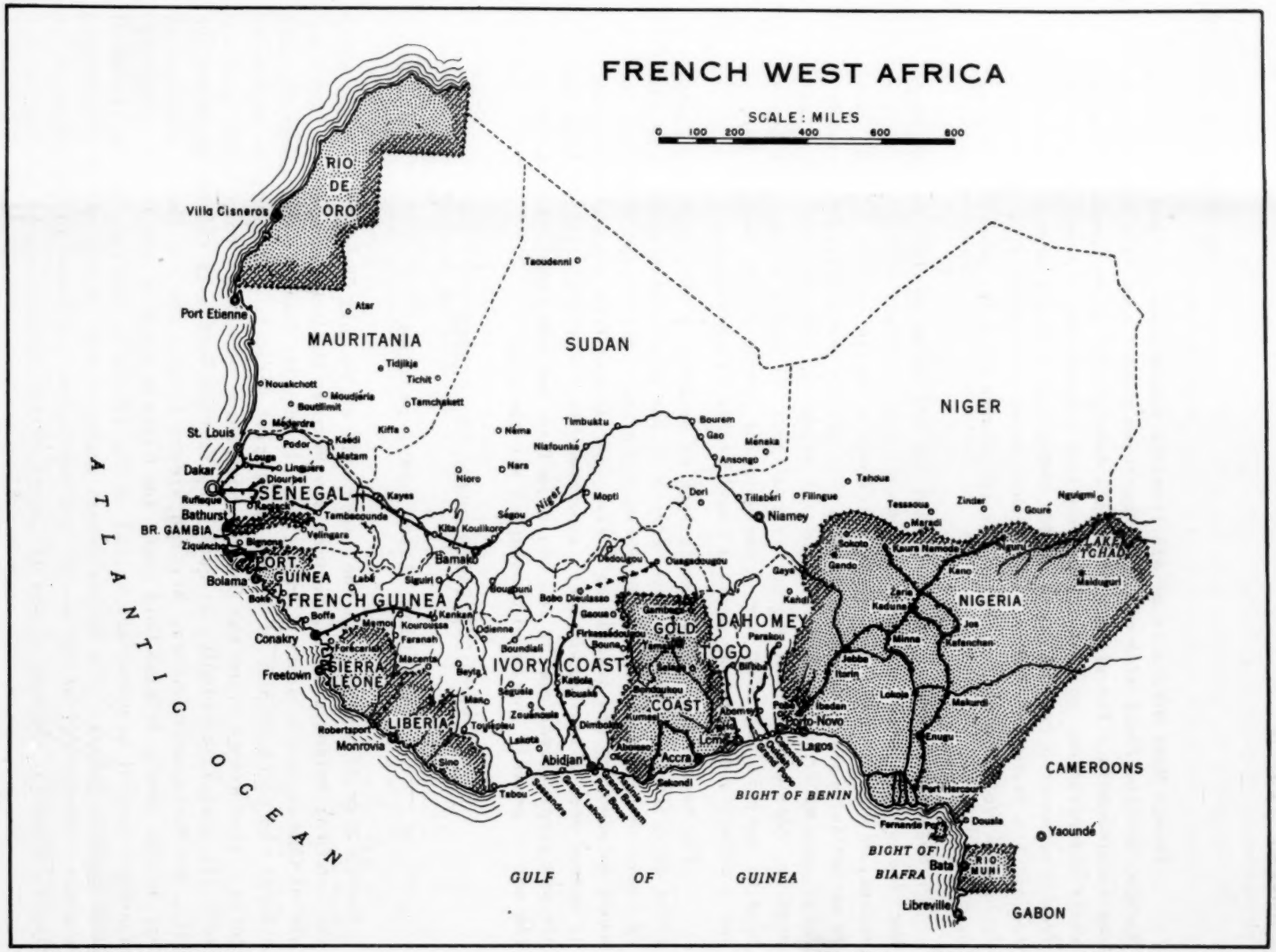

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Figure 1.-Map of French West Africa, showing railways.

Excluding the narrow strip of Togo, an ex-German colony now under French and British mandates, French West Africa is divided into seven provinces, of which *Senegal*, in the west, is the most important economically and strategically. Three of the other six - *Mauritania*, *Soudan*,[1] and *Niger* - consist of little else than savanna and desert. South of these lie the other three, rich in tropical forests and park-savanna: *French Guinea*, *Ivory Coast*, and *Dahomey*. Each has its capital, residence of the provincial governor; at Dakar, in Senegal, the Governor-General of all French West Africa embodies the suzerainty of France.

Topography

French West Africa's relief may be briefly described as a sandbar-ridden coast, marked in the south by a string of lagoons into which numerous rivers empty; a swiftly rising coastal plain, covered with dense vegetation and culminating in a broad ridge of 2,000 to 3,000 feet in altitude, with a western plateau called the Futa-Jallon in French Guinea and an eastern one called Bauchi in Nigeria; then a gentle slope toward the northern plains of the Sudan, which in their turn give way to the Sahara, rarely rising higher than 1,000 feet. Drainage south of the ridge is by numerous short streams and north of it by two long meandering river systems, which eventually find their way out to the sea - the Senegal by bending westward, the Niger by turning southeast and joining with the Benue in Nigeria. These two great streams are the natural gateways to the interior, the two highroads of penetration.

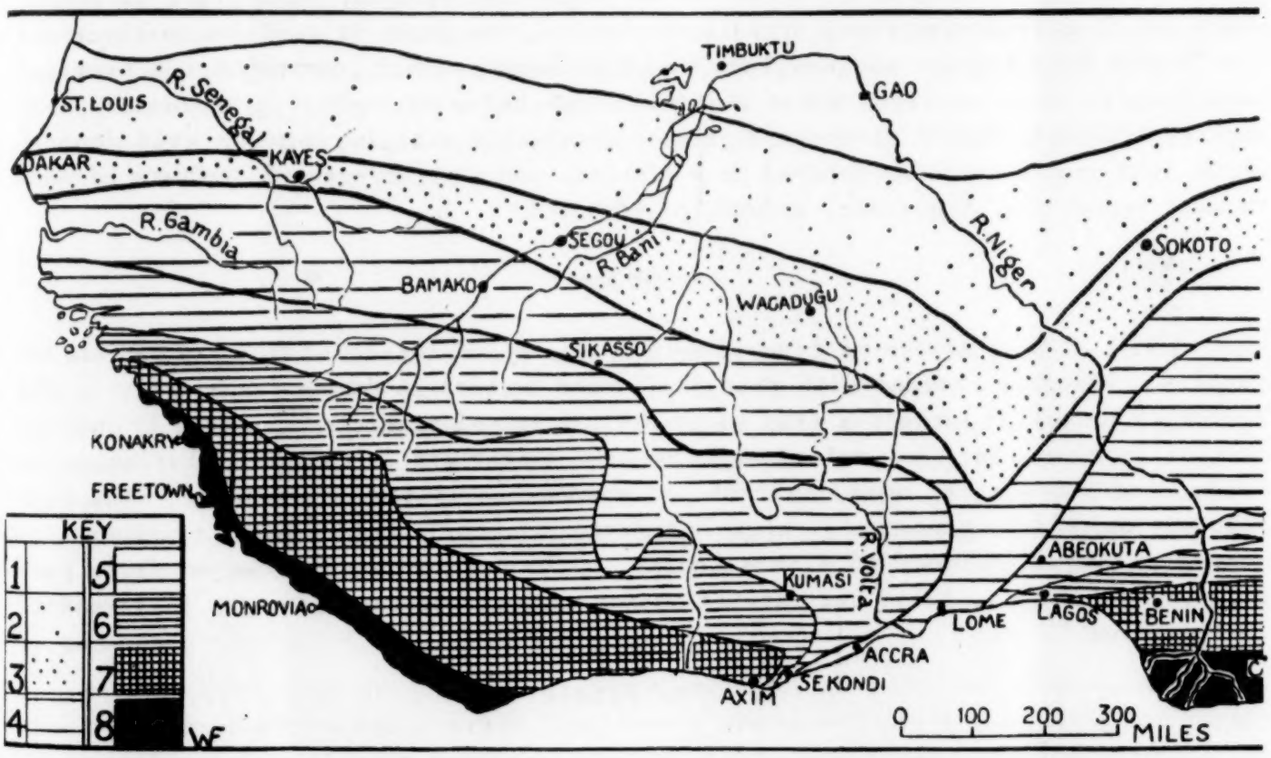

Figure 2.-Distribution of mean annual rainfall in French West Africa. *1*, less than 10 in.; *2*, 10-20 in.; *3*, 20-30 in.; *4*, 30-40 in.; *5*, 40-60 in.; *6*, 60-80 in.; *7*, 80-120 in.; *8*, over 120 in. (From *Africa*, by Walter Fitzgerald, E. P. Dutton and Company, Inc.)

[1] To avoid confusion between the geographical "Sudan" and the French administrative territory of that name, the spelling "Soudan" will be used when that colony is meant. "A.O.F.," the initials of French West Africa (*l'Afrique Occidentale Française*), are widely used for abbreviation.

Climate

West Africa has three climatic belts: Guinea coast, Sudan, and desert, merging into each other. The *Guinea coast* zone is characterized by torrential rains from the southwest monsoon in summer and by gentler rains from equatorial winds in winter, except on days when the "Harmattan" (the dry northeast trade wind) reaches the coast from the interior. The *Sudan* climate is marked by increasing temperatures and diminishing precipitation as one proceeds from south to north, and by a definite dry season from November to March, or longer. This gradually changes into the *desert* climate, with its high temperatures, great day-and-night differences (normally over 50°), and occasional winter night-frosts. Rainfall ranges from 8 or 10 inches in the semidesert to none further north; in the Guinea coast zone it reaches over 130 inches in some places.

Vegetation Zones

Following these rain belts several vegetation zones appear. In the belt of 60 inches or more of rainfall is found the evergreen *tropical rain forest*, or *selva*, fringed on the north by a *monsoon*, or *mixed-deciduous*, *forest* less lofty than the selva and largely leafless during the short dry season. North of this lies the broad *savanna*, divided into the "high-grass, low-tree savanna," or savanna-forest, with its coarse rank growth of grasses 5 to 12 feet high; the "acacia, tall-grass savanna," where the fire-resisting trees stand scattered and the grass is good for pasture; and the "acacia, desert-grass savanna," or thorn-bush steppe, which is sometimes a treeless savanna. In those sections where rainfall drops below 10 inches, a *semidesert* belt appears, with only desert shrubs and grasses, gradually changing into the arid desert-shrub land of the southern Sahara. Each of these zones yields natural products of commercial importance; vegetable, animal, or both.

Soils

Most of West Africa is covered with *laterite* and lateritic loams of extreme antiquity. When not covered with sand (as in the desert) or humus (especially in the forest), this soil is largely a mass of quartz and gravel particles cemented by hydroxides of iron and aluminum, deficient in organic matter and in calcium, alkalies, silicates, and phosphates; hard as brick and unworkable in the dry season.[2] The soil responds quickly to nitrogen in organic manure, but poorly to dressings of phosphatic manures. The deficiency of mineral salts in the bush grasses grown on these poor soils is believed to limit the rate of growth and reproductive capacity of livestock in this area.[3]

The People

Of the 14,700,000 inhabitants of French West Africa 350,000 are classed as Christians, 6,250,000 as Mohammedans, and 8,150,000 as Animists. Only 25,000 are

[2] Shantz, H. L., and Marbut, C. F., *The Vegetation and Soils of Africa*, pp. 125-127, New York, 1923.

[3] Faulkner, O. T., and Mackie, J. R., *West African Agriculture*, pp. 18-19, Cambridge, 1933.

Europeans, mostly French. The mass of the people are Negroes, but Hamitic influence increases as one proceeds toward the desert regions, where it outweighs the Negro element both racially and culturally. The most primitive peoples are found in the dense forests of Ivory Coast; the most advanced native societies are remnants of a group of eastern kingdoms, such as Dahomey and Mossi (north of Gold Coast), or of the defunct western empires of the Middle Ages, like the sultanate of Cayor in Senegal.

In Mossi, agriculture provides 85 percent of the food needed for its 3 million inhabitants; the remaining 15 percent is gathered wild or obtained by hunting. In the deep jungle of Ivory Coast these figures are reversed, and population density is hardly one-fifth of that in Mossi, where it reaches 65 per square mile.[4] The interior provinces of Soudan and Niger are still more thinly popolated than the Ivory Coast forests, even along the Niger River; Mauritania, which is nearly all desert, holds the record low population density of 1.2 per square mile.

Standards of living are low if judged by our concepts, and particularly so if measured by our standards of spending. Such an evaluation is absurd, however. Almost all natives grow their own food, and hunt and gather wild all else they need. Only a fraction of the commodities so obtained needs to be bartered or sold for cash, with which taxes are paid and luxuries bought. The better organized tribes of French West Africa have lived well, by native standards, for many centuries. Only in the north supplies may be endangered by drought or pests, and the disorganized tribes of French Soudan have occasionally suffered famine. It is contact with the money-economy of the white man that disrupts the native economic stability, especially where cash-crops are raised. But this contact also enables the natives to raise their standard of living materially. The French do consider nowadays the well-being of these people, whose native culture is disrupted by the powerful impact of "civilization."

LAND UTILIZATION

Land Tenure

The West Africans are deeply attached to their land: they worship it as an expression of the bountiful Earth Goddess; they love it as the soil in which their tribal life is rooted; they acknowledge their duty to make use of it; and they regard it as something entrusted to them by their ancestors and to be passed on, unimpaired or improved, to their children's children forever.[5] Ownership of land in the European sense, as something that can be bought or sold, is utterly foreign to them. The same natives who unhesitatingly admit the white man's political authority absolutely refuse to recognize any property-rights over the territory ceded by their chiefs or occupied by conquest.

They know, however, the importance of security in holding the land one cultivates, and have accordingly strict land-tenure systems of their own. The most primitive tribes have a clearly communal land law. More developed tribes do not hold the land communally any more, but have distributed it among groups of people representing

[4] Gautier, Emile, *L'Afrique Noire Occidentale*, ch. V., Paris, 1935.

[5] Jones, G. Howard, *The Earth Goddess*, p. 157, London, 1936.

[6] Lenoir, Robert, *Les Concessions Foncières en Afrique Occidentale Française et Équatoriale*, p. 10, Paris, 1937.

families. The mostly highly organized tribes recognize individual trusteeship rights to land in perpetuity. In the old native community the right of holding land carried with it obligations; for example, the duty of defending the tribe in case of war or invasion. With the advent of European rule tribal warfare ceased, and so the duties of this trusteeship have almost entirely lapsed. Nevertheless a man's land may revert to the community when he has committed some act obviously and flagrantly disloyal to his tribe, or when the land is left continually unused. This scheme might do well enough in a pure subsistence agriculture, but when money crops are raised on which a lot of work has to be done, and which may be undertaken on a larger scale by native or European planters, the native system does not provide the full security needed.

The French have found an excellent solution for this problem, taking their cue from the Netherlands Indies but developing a system of their own to suit West African conditions.[7] They gained some bitter experience in Algiers, and besides, in French West Africa there was little pressure to secure land for colonists. An attempt to start a plantation in Senegal early in the nineteenth century proved unsuccessful, and thereafter economic policy was directed chiefly to the development of a peasant economy assisted by the State. Thus the decrees formulating the present policy show evidence of a definite concern for native rights, as well as for the need of the fullest possible utilization of the country's resources.

From 1900 to 1925 natives were able to obtain legal title to the land they claimed by the simple act of *registration*. But although this system was successful in urban centers, its requirements of boundary-marking, maps, and a fee deterred the simple peasant. Hence an easier scheme was set up, by decree of October 8, 1925, which worked so well that it has been adopted definitely. The exchange is very simple and requires no fee. By public inquiry the Administrator of a district ascertains the location of the lands in question and the nature of the rights claimed, such as individual or collective occupation and grazing rights. If after three months no objections have been raised either by individuals or by the State (which is legal holder of all vacant or unclaimed lands), the requested title is granted and inscribed in a special register. This 'native' title, like that obtained by formal registration, does not permit mortgaging of the land it covers, but it secures to the family or individual the fruits of their labor and the undisputed continuation of their use of the land. It can also be applied to buildings, thus facilitating the public acknowledgment of a 'family estate,' whose owners are secure from ejection.

Land concessions are regulated by the decree of November 15, 1935. In repeating that the State is owner of lands "vacant and without master," the decree adds that the State has control also of any land not used or occupied for ten years. Land required for public use, up to 247 acres, can be taken up by decree of the colonial Governor; for larger areas the sanction of the Governor-General is required. Alienation of areas of over 4,942 acres must be sanctioned by a decree of the Government in France. There is obviously much 'vacant' land in a country where the densest rural population is only 65 persons per square mile, and the average only 8.

In former years concessions were granted to planters or cultivation companies for permanent tenure, usually at a price varying with the quality and location of the

[7] The data following are taken from Lenoir, Robert, *op. cit.*; Lord Malcolm Hailey's *African Survey*, pp. 829-842, Paris, 1938; and the *Annuaire Statistique de l'Afrique Occidentale Française*, ch. VI, 1936-37-38.

land. Many of those given out before 1903 were afterward abandoned by the holders; 162,733 acres are still held on such a 'definite' title.[8] Since the beginning of 1937, however, only provisional titles have been granted, on the basis of certain conditions. The holder of such a concession has only the use of the land; he cannot cede his rights without government authorization, use it as security, or mortgage it. The only section which the planter may own in full title is the lot on which he has built his home; the remainder remains state-domain. When the term of the provisional concession expires, the planter may request its renewal. If the state cannot grant the renewal, the planter may claim an indemnity equal to the value of the improvements he has made on the land. The sole obligation imposed on the planter is that he keep the concession in value by proper management.

The acquisition of lands in ownership, therefore, has been impossible since 1937. All new concessions are in the nature of a long-term lease only. Some 190,000 acres were so leased at the close of 1937. The majority of these concessions are in Ivory Coast (over 123,000 acres) and French Guinea (almost 40,000 acres), and are used for the development of banana, rice, and coffee plantations. In this way the native is protected from land-grabbing corporations, the state can reserve large areas for the expansion of population, and good plantation land is put to use for the benefit of the country.

TABLE 1.—*Land utilization in French West Africa, 1937*

CLASS OF LAND	SENEGAL AND DAKAR	SOUDAN	GUINEA	IVORY COAST	DAHOMEY	NIGER	MAURITANIA	ALL FRENCH WEST AFRICA
	Acres	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*	*Acres*
Wooded lands:								
Tropical forest ...	2,470	11,115	2,470	32,110	1,235	-	-	49,400
Others	19,760	64,220	4,940	12,350	4,940	7,410	2,470	116,090
	22,230	75,335	7,410	44,460	6,175	7,410	2,470	165,490
Cultivated lands[1]	3,211	2,964	1,482	6,175	1,482	2,470	247	18,525
Other lands ..	24,700	293,930	51,870	66,690	19,760	311,220	207,480	975,650
Total surface (in rounded figures)	50,000	372,000	61,000	117,325	27,000	321,100	210,000	1,160,000

[1] Not including palm groves, which are considered as wooded lands.

Annuaire Statistique de l'Afrique Occidentale Française, p. 41, Paris, 1939.

Native Agriculture

At present almost everything the peasants grow for home consumption is not native to Africa, but was introduced from Asia and America. Not a single cultivated plant has been developed by them from wild species. Many alien plants, however, have

[8] December 31, 1937, official figure.

been so successfully cultivated that they are now represented by well-adapted African varieties that may even occasionally grow wild. Other food plants, such as *rice*, are native, but their cultivation was introduced from Asia.

Coffee grows wild in West Africa, but its cultivation came from the Arabs - or at least was transmitted by them. *Wheat* was not grown by African natives until white occupation; *millet* is a widely grown African crop, probably Asiatic in origin; *sugarcane* is definitely Asiatic. *Sesame* and *cotton* came from India; *sisal* and *corn* from America; and a dozen other plants from Europe, Asia, or the New World. *Bananas* are African according to most botanists. Five plants of great importance in the native economy are truly African, however. They are the *oil palm, shea butter tree,* the *castor bean,* the *cola tree,* and *yams*. Only the yams are not merely gathered wild, but also cultivated, like the banana. The other four are not really domesticated at all, although oil palms especially are often planted in groves.

In the savanna country many other crops are grown for native consumption: *tubers* such as sweetpotatoes, cassava (mandioca or manioc), and taros (coco-yams); *truck crops* such as cowpeas, peas, beans, tomatoes, eggplants, cucumbers, squashes, and onions; *condiments* such as melegueta pepper, pimiento, gumbo *(Hibiscus esculentum);* various *grains;* and *industrial plants* like cotton, indigo, hemp, and tobacco.

The most important food crops are *millet, sorghum* (also called *Guinea corn* or *durra),* and, especially in the western Sudan, *peanuts*. Among the native fruits is the *plantain,* a coarse kind of banana preferred by the natives because it is not so sweet and cooks better. It is the staple food for many forest people, prepared by pounding it first into a pulp. The natives cut down the plantain trees after they have borne fruit, dig up the stumps, and plant them elsewhere, as the tree is of no further use in its old locality.[9] Other important fruits are *oranges* and other citrus fruits, *pineapples, papayas, mangos,* and *avocados*.

Native consumption of these home-grown commodities varies greatly according to the locality and the people. At the time of the agricultural census of 1930 estimates were made of the foods grown for home consumption. Table 2 presents these estimates in concise form, showing the distribution of crops by colonies.

The native farm

The different vegetation zones of French West Africa give rise to different types of farming. In the tropical forest belt with its heavy rainfall and short dry season the farmer has to clear a place in the dense jungle and continually fight weeds and undergrowth; hence the farms are usually small and intensively cultivated. Agriculture in this belt might be correctly termed garden-farming. Mixed cropping is usual; the plants are spaced as closely as possible. The following example of a full cycle is typical of this zone:

First year: Bush cleared and burnt in July; late corn planted on the flat in September; hills for yams made and planted in November.

Second year: Early corn interplanted with yams in March; cotton interplanted with the yams and corn in early August; corn harvested late in August. In addition, edible beans and gourds also grown in the cotton.

[9] Newland, H. Osman, *West Africa - A Handbook of Practical Information,* p. 58, London, 1922.

TABLE 2.—*Foodstuff production in French West Africa, 1930*

PRODUCT	SENEGAL	DAKAR	GUINEA	IVORY COAST	DAHOMEY	SOUDAN	UPPER VOLTA[1]	NIGER	MAURITANIA	TOTAL
	Short tons	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*	*Short tons*
Millet	347,472	220	33,069	25,904	109,298	769,319	676,344	889,556	43,474	2,894,656
Yams	—	—	—	1,385,150	913,763	—	14,632	—	—	2,313,545
Bananas	—	—	—	1,523,048	—	—	29,762	—	—	1,552,810
Cassava	35,108	55	55,115	462,701	488,723	31,482	1,361	12,236	—	1,086,781
Corn	19,489	—	59,524	40,785	184,437	89,486	88,426	12,456	4,974	499,577
Rice	37,506	—	159,834	82,672	28	88,950	3,218	4,464	688	377,360
Fodder	—	—	203,925	7,716	8,470	11,354	2	1,102	—	232,569
Peas and beans	12,919	—	—	—	60,910	25,820	5,550	112,545	—	217,744
Sweet-potatoes	—	110	22,046	7,165	25,213	141,732	1,123	551	119	198,059
Taros	—	—	—	196,209	115	—	—	—	—	196,324
Peanuts[2]	70,492	—	—	15,322	32,645	—	40,651	—	3,990	163,100
Cowpeas	—	—	—	—	—	—	43,933	—	10,472	54,405
Onions	—	—	—	—	—	—	—	4,850	—	4,850
Dates	—	—	—	—	—	—	—	715	2,866	3,581
Condiments	—	6	110	496	414	—	—	—	—	1,026
Wheat	—	—	—	—	—	—	—	896	23	919
Pimiento	—	—	—	—	300	—	—	—	—	300
Barley	—	—	—	—	—	—	—	130	36	166
Squash	—	—	—	—	—	—	—	55	—	55
Potatoes	—	—	—	—	—	—	—	3	—	3
Other products	44,015	—	—	—	—	—	—	—	882	44,897
Total	567,001	391	533,623	3,747,168	1,824,316	1,158,143	905,002	1,039,559	67,524	9,842,727

[1] Upper Volta, north of British Gold Coast, was a separate colony at the time of the 1930 agricultural census. By decree of September 5, 1932, it was abolished for reasons of administrative economy, and its territory distributed among Ivory Coast, Soudan, and Niger. It is the habitat of the Mossi people.

[2] Only the peanuts for native consumption.

Converted from consular report 36640 by John J. Coyle, Paris, December 11, 1931.

Third year: Early corn and cassava interplanted.

Fourth year: Cassava planted.

Fifth year: Land reverts to bush.

Only one thorough cultivation was given the land during this whole period; namely, at the time the hills were made for the yam crop. Weeding and shallow cultivation are frequent, however. After the first year of the cycle another area of bush land is cleared to make a new farm, in its turn to be intensively cropped for three or four years while the first is allowed to recover. The resting period may last one year or longer, depending on the density of population, but is commonly about four or five years.

This system of cropping, known as *shifting cultivation*, is almost universal throughout West Africaiin those areas where land is still abundant. It is destructive of the forest; however, economically valuable fruit trees like the oil palm are spared in the clearing, though their growth is checked by heavy scorching and severe pruning. Even the stumps of valueless trees and large bushes are not destroyed, but their regrowth is checked temporarily by regular lopping during the period of cultivation. In this way the natives secure a fallow of secondary bush rather than of grass and annuals, thus avoiding weeds and insuring better recovery of fertility before a second clearing.

For cultivation the natives prefer high forest clearings to any secondary bush; hence rapid disappearance of the forest is noted in thickly populated areas. In locations cleared of high trees farming becomes a system of rotational "bush fallows." If at least half the time is allowed for fallowing, this is successful, but when the time of cultivation exceeds the fallow, as in some heavily populated areas in Nigeria, the soil becomes exhausted and the yields are poor. Here the chief problem is that of finding a suitable system of manuring. Cattle cannot be kept in this section because of the tsetse-fly, but only small stock - sheep and goats. The Government is attempting to introduce a satisfactory scheme of green manuring in this belt.

In the north the rainy period occurs only once a year, and lasts for only three to five months, varying with the latitude. Here the farmer must cultivate as much land as he can manage in order to grow as much as possible during this short period. After the long drought, clearing is fairly easy. Only one crop a year can be obtained, and mixed cropping is usually practiced with millet and Guinea corn (sorghum) only. Cotton, peanuts, rice, sesame, and the like are usually grown as sole crops, except that a few rows of millet may be grown through the peanuts and some gourds and edible beans grown sparsely through the cotton and Guinea corn fields. Northern farms, accordingly, are bound to be much larger than the southern "gardens" in the jungle. Immediately around his compound the northern farmer maintains a rather large area that is kept lightly manured by refuse and by cattle which are herded on the land at night during the dry season - a service for which he pays the Fulani herdsmen. Beyond this central area shifting cultivation is the rule, as in the south.

The northern farmer must grow both his food and his money crops in the short rainy season, fighting against time; occasionally he experiences partial crop failure when the rains are insufficient or of too short duration. He usually plants his millet immediately after the first heavy April rainstorm, without previous cultivation. As soon as the land can be dug, Guinea corn must be planted. He is kept busy weeding

until July or early August, when the millet is ready for harvest and cotton is planted. He cannot grow permanent crops, such as cocoa or oil palms; thus he is forced to do more manual work over a larger area, for a smaller return. However, he has a long dry season to relax; and he does not do all the manual work himself. The semifeudal conditions of the northern emirates have given rise to a class of large landowners, whose lands are usually divided into farms of ordinary size, each managed by a "servant" or tenant, drawn from the class of freed slaves. The larger landowners bother little about the management of their farms, taking the major share of the crops, leaving the tenant enough for his own needs, and accepting general responsibility for the tenant's personal expenses and family affairs. This medieval system survives largely because of the inertia and servile temperament of these serfs, who show little desire for greater independence.

Between these contrasting types of farms in the south and the north lies the belt of transition. In this wooded savanna belt the cultivation of sisal, native cotton, and peanuts, and the exploitation of the shea-butter tree and the silk-cotton tree (kapok), are of importance, while a good deal of the native diet is obtained by hunting or collecting. Near the great forest, tubers and Guinea corn are alternatively cultivated; further north, Guinea corn and millet are the chief grains grown. In Senegal peanuts are the all-important crop; in French Guinea, production of tropical fruits becomes increasingly significant. On the whole the farmers in this belt are less provident than those further north, and are more exposed to privation than the forest-dwellers nearer the coast.[10]

Around each compound, in any belt, a small patch of land is usually kept planted with garden vegetables and plants that supply minor domestic needs: fibers for rope, dyes such as henna or indigo, gourds, and often tobacco.

The area cultivated by the individual farmer varies according to the labor he has available, but in general is about 3 acres, which is but a fraction of the area over which he has rights of occupancy, of the collection of forest products, and of hunting.

Farm labor

Except in the northern emirates where, as in the Futa Jallon, serfs are available for manual work, the West African peasant must do his own. The whole family, however, shares in the work of cultivation. In most tribes the various operations are definitely classified into men's work and women's work.

> "The men generally do the heavy work such as clearing and making the original heaps of soil or ridges for planting; they then do certain major weedings and assist with the harder parts of harvesting, such as cutting and laying Guinea corn stalks. The women, as a rule, do the planting, keep the land clean between the main weedings, harvest and market the crops. There are, however, great variations from tribe to tribe in these arrangements; generally the more primitive the tribe the heavier the work done by the women, whereas among the stricter Mohammedans the women do practically no farm work. Children are required to assist in many of these operations, but their special function is to keep the birds from the grain crops while the grain is ripening . . . Forest trees which give valuable fruits, such as oil palms, are sometimes

[10] Cosnier, Henri, *L'Ouest africain français*, p. 188, Paris, 1921.

owned individually and sometimes communally . . . Shea nut trees are generally regarded as entirely common property and the collection and the preparation of the nuts and butter is women's work."[11]

Where profitable money crops are grown, communal land rights are gradually replaced by individual rights, guaranteed by French law. Otherwise the native scheme of life is little affected. Since labor is not wage-labor, there are no labor problems. The farmer can manage without producing anything for export, if he grows enough for local sale to provide him with money for taxes. If he does make money on export crops, he spends it on such luxuries as meat, clothing, tinned foods, kerosene, or corrugated iron for his house, an exchange which profits only the trading-firms. The village artisans - weavers, smiths, potters - generally do some farming themselves, and barter their products directly with local farmers.

Thus, in spite of its inefficiency from our point of view, West African native agriculture provides an exceedingly stable economic basis. If export prices fall, the great mass of the people have merely to give up some imported luxuries. They do not starve, and there is practically no unemployment. It is only in the one-crop areas, where peanuts or cocoa have pushed out the old type of mixed farming, that a world depression causes hardships until adjustments are made. But even here the native farmer is better off than the European planter who has to pay wages; and the native laborer, who usually has his own small farm, suffers little in comparison with the laborer of a "civilized" land.

Farm tools and machinery

The typical West African farmer does all his cultivating by hand. The use of animal-drawn farm implements is impracticable partly because horses or ponies cannot live in those areas where the tsetse-fly breeds, which is in all densely shaded districts, in closed forest, and along the shady banks of rivers in otherwise open districts. Only the few grassy coastal plains and the drier belts of savanna in the north are free from this pest. The zebu cattle of the north remain largely in the hands of the nonagricultural Fulani herdsmen. The idea of using animals for draft purposes is new to the West African peasant; hence it is not surprising that at the agricultural census of 1930 only 7,014 plows were found in all of French West Africa in spite of the fact that the plow had long been the subject of intense propaganda.

The most commonly used native tool is the *African hoe*, which usually has a short handle forming an angle of about 60 degrees with the iron blade. The *cutlass* is used chiefly to cut away the bush, especially the thick growths of woody creepers and shrubs, and the long, trailing plants that so soon cover old farms. It is often used like an ax, to cut roots and even trees. Other hand implements, such as the spade, shovel, fork, rake, ax, pickax, and mattock, are of European origin.

Among the larger farm implements, tractors are far too expensive and could not be used without extensive clearing of the bush and "stumping" or digging up of roots, which are larger and more numerous than in most other countries. The same problem exists if animals are used; besides, the native has his own reasons for not readily adopting better tools. All his life he has followed the old methods - "garden"

[11] Faulkner, O. T., and Mackie, J. R., *op. cit.*, pp. 26-27.

cultivation in the south; extensive light farming in the north - and he has managed practically without money. The test of soundness to him is the return per normal day's work. In the south a moderate effort is enough to safeguard his needs. In the north he either has worked out a satisfactory economy, as in Mossi, supporting a fairly dense population, or he lives precariously on the edge of a bare subsistence level, as in French Soudan, where even along the Niger famines occur in years of heavy drought or destruction by grasshoppers. Here the individual peasant is too poor and weakened to pull himself out of misery, while the destruction of the old native empires has left his socio-economic organization too feeble to come to his rescue. Farm implements are thus beyond reach of both his thought and his purse. And in the case of large landowners, with serfs or slaves as tenant-farmers, the incentive to intensive agriculture is absent among the serfs, who have neither hope nor energy to raise their lot; while their landlords, as everywhere else, do not care to spend money for them on implements they do not know.

Plantation Agriculture (European)

Plantation agriculture, in the sense of European agricultural enterprise, is still relatively undeveloped in French West Africa. This country never shared in the policy of large concessions which distinguished the early history of Equatorial Africa and the Belgian Congo. The scarcity of labor and the Government's land policy discourage prospective European planters from large-scale operations. The total area of the concessions in each colony at the end of 1937 was as follows:[12]

	PROVISIONAL *Acres*	PERMANENT *Acres*
Senegal	7,744	9,956
Soudan	17,816	27,379
Guinea	38,973	18,115
Ivory Coast	124,017	104,195
Dahomey	1,685	3,064
Niger	-	24
Total	190,235	162,733

Figures for concession areas by crops are not given, but bananas and coffee are the principal crops in European hands, while smaller areas are set aside for sisal, cola, and rice, chiefly in Soudan, Ivory Coast, and Dahomey. The nonnative production of coffee in French Guinea and Ivory Coast is still small; but banana plantations in the same colonies have expanded considerably since their beginning in 1932-1933. For all other products except cotton, native cultivation is far more important than European. Banana cultivation was also taken up by the natives, but gradually abandoned in favor of the crops that require less care, such as cacao, oil palms, and - increasingly in Ivory Coast - coffee. The European banana plantations are principally in the hands of planters from Abidjan, Agboville, and Sassandra, all on the lower Ivory Coast; an older center is the Kindia-Mamou region in French Guinea behind Conakry, and minor centers are found in the coastal lands of Togo and Dahomey.

The only variety cultivated for export is the Chinese banana, *Musa sinensis*. European management and the relative nearness of this ideal banana-land to European

[12] *Annuaire Statistique de l'Afrique Occidentale Française*, p. 43, 1936-37-38.

markets have led to a thorough organization of the banana industry. Specially built fast boats take the fruit from Port Bouet and Conakry, where it awaits shipment in cooled warehouses. Because of its fragility this variety requires careful handling, and packing in straw and paper or wood-fiber. Inspection of all bananas destined for Paris has been strictly enforced since 1938.[13] Therefore the virtual monopoly of this export crop by European planters is not surprising. In 1938 total banana exports amounted to 71,790 short tons.

Irrigation: the Niger Project

A special type of plantation has been made possible by a gigantic irrigation project in what is known as the "Niger delta" area in French Soudan. This project was undertaken primarily to meet France's need for good-quality cotton. The short-staple variety grown by the natives was unsuitable, and the better foreign varieties would not grow on unirrigated lands and under the poor native methods of cultivation.

In 1924 and 1925 the matter was thoroughly studied, and in 1926 the project was started with the digging of the first "experimental" irrigation canal, that of Sotuba below Bamako, opened in February 1929. This canal made available 24,710 acres for intensive cultivation and led to French West Africa's most vital social experiment. Fifteen villages were established on this irrigable land, and a new scheme for colonization was worked out which proved highly successful. Thereafter was begun the erection of levees to prevent the Niger's annual destructive floods, the raising of the river's waterlevel by means of a dam at Sansanding to be completed in 1941,[14] and the creation of a vast network of irrigation canals, meant to bring about 2.5 million acres on the left bank of the river under irrigation and revolutionize the agriculture of the region.

The problem faced by those in charge of the project was to get natives to work the new land, for in this region they rebel against the idea of working for the white man for wages. Yet without the white planter's machinery and methods the project would never pay for itself. The natives had to be bound to the soil, too, for the continuous intensive cultivation which alone makes irrigation profitable. Heretofore the only system of soil-regeneration they knew was fallowing. Whole villages would abandon their fields after a few years and move elsewhere. In this region these methods often produced not enough food, let alone cotton for sale, which was secondary.

The solution was found in joint exploitation by whites and natives, in which each group contributes its specialty: the native his labor, lands, and beasts; the white man his capital, machinery, techniques, order, and discipline. The white man provides the cotton nurseries, the gins, and the balers. The natives are grouped into agricultural associations by the Administration; settle in their new villages, aided by the Government's agricultural credit; and clear enough land for food and money crops. They make a group contract with the white planter to observe his technical direction in the cultivation, tending, harvesting, and treating of the crop, using his modern equipment and their own cattle.

[13] *Bulletin mensuel de l'Agence économique de l'Afrique Occidentale Française*, p. 61, March 1939.

[14] Van Slaars, Sidney, American Clerk, Paris, in a report entitled, "Hydraulic Works in Nigeria, Senegal and Madagascar," February 17, 1939.

The Administration manages the native associations, supervises their finances, and sees to it that both they and the planter observe the terms of the contract. The white planter's remuneration is either an agreed but revisible portion of the harvest or a percentage of the money paid by the European exporter, according to a periodically revised scale. The native peasant, after a few years, is recognized as the permanent occupant of the land he has tilled, with all the essential rights of ownership except those of subdivision and unauthorized alienation, which are withheld for his own protection. His children or heirs receive the same native title to the land when he dies. Thus from a wandering, primitive cultivator he becomes a "modern" farmer.

The white planter, too, achieves his aim: increased income from increased production. He is freed from the worries of recruiting laborers, and of feeding and housing them. Financially he is relieved from the cost of preparing the soil, of keeping the plantation in good condition, and of harvesting the crops. He can thus produce with a minimum of capital and at low cost.

As to the natives, their share of the crops grown by this intensive cultivation is much larger than the total they previously obtained by their own archaic methods; in addition they are assured of a money income, which is honestly administered through their association. The result has been a great rise in their standards of living. In a few years these Bambara peasants have learned to use draft animals, plows, and cultivators. Rice has been added to their staple foods. Already their infant-mortality has been reduced by two-thirds, in consequence of better nourishment and better living conditions.

Those living near the highways have prospered especially. One striking testimony to their satisfaction with the methods used is the request by the inhabitants of Niénébalé to the Administration for a school where their children may learn French. It was this district with which native agricultural colonization began, in 1925. The previous living conditions of these steppe peasants may be inferred from some remarks about the changes found some ten years later:

> "In the huts, everybody now has a blanket, every village chief his mosquito-net; several imported articles like wash basins and metal plates have replaced the traditional calabash; the bulk of the colonists is relatively well-clad; finally, a number even possess bicycles and guns, which constitute a veritable luxury."[15]

The "Office of the Niger" has not contented itself with improvements of farming on irrigation lands only. By means of an experiment station at Baroueli, between Bamako and Ségou, it has tried to introduce the Soudan peasants outside the irrigation zone to rational methods of dry farming. Volunteers were allowed to work the station's lands for themselves under direction of technically trained European personnel. As a result, 4,942 acres were being cultivated in 1934 in the Baroneti area, with a yield in cotton that would make a population density of 130 or 155 per square mile economically feasible.

The great Niger project is the most far-reaching agricultural enterprise in French West Africa, with social consequences that promise to equal the material ones. Its cost, gradually being paid for by a flexible land-tax on the irrigated tracts,

[15] Lenoir, Robert, *op. cit.*, p. 92.

would seem to be one of France's most sagacious investments. Its initial success has led to a study, in 1939, of similar works on a smaller scale in the valley of the Senegal, near Guédé and Demette, with a view of improving existing cultures, and stimulating new ones, principally cotton, and the development of cattle breeding. Probably the war has delayed this newest enterprise.[16]

Waste, Erosion, Soil Exhaustion, and Conservation

The wasteful system of shifting cultivation still so universal in French West Africa steadily diminishes the area of humus-covered forest lands, and at the same time exhausts the soil - both in the forest and savanna belts - because secondary bush only partly restores what the crops have taken away. As long as the population is scarce and land relatively plentiful, this evil is likely to be overlooked, and only a few experts will be alarmed. That seems to be the situation in French West Africa. Except for the irrigation area of the Niger and for the protective work of the Forest Service, created in 1925 and mainly concerned with Ivory Coast, no systematic conservation schemes have yet been worked out. Yet in the savanna belts erosion is serious,[17] particularly on steep slopes once they have been burned over, and in the dry season fires are only too frequent.

The provisions of a decree of 1912, aimed at the limitation of cultivation near villages to preserve woodlands, were never enforced. Since then the importance of native cooperation in forestry work has been recognized, and a circular issued by the Governor of Ivory Coast in 1934 describes the afforestation work done by the native communities in the savanna areas under the supervision of the Forestry Department. The species to be planted are prescribed for each of the three regions into which the north of this colony has been divided for this purpose. Old trees of valuable species are marked by the forest service staff for reservation and used as seed-bearers, the seed being collected by the villagers under orders of the administrative officers. Special plantations have been started to supply wood for the railways; and in several forest areas reserves have been created, comprising 3,460,000 acres, or 5,400 out of a total of 40,000 square miles of Ivory Coast's rain forest.

The *Geographic Journal* of August 1933 carries articles by A. M. Champion and C. W. Hobley on soil erosion in Africa, mentioning, among factors aggravating surface-wash in that continent, the violent rainstorms which frequently precipitate an inch of water in an hour; the extremely long drought in the northern Sudan, drying up the vegetable mantle; the high winds; the human destruction by fire and by increased, shifting cultivation; and over-grazing. The last is serious only in the drier belts of the savanna, where cattle can be kept because this region is free of the tsetse-fly.

Although Hobley states without hesitation that the two greatest problems in Africa are "the checking of erosion and control of the tsetse-fly," it is admitted that the presence of the latter, by preventing cattle concentration, has also prevented the heavy erosion which has laid waste such large areas in East Africa. This paradoxical "blessing," however - which is said to have preserved two-thirds of Tanganyika

[16] Van Slaars, Sidney, American Clerk, Paris, in a report entitled, "Soil Amelioration in the Senegal Valley," May 15, 1939.

[17] Irvine, F. R., *A Text-Book of West African Agriculture*, pp. 55-61, London, 1934.

"from erosion and ruination at the hands of the native population" - is outweighed by the fact that it also prevents restoring the fertility of the cultivated forest soil by means of animal manure. It is for this reason that African agronomists have paid so much attention to the problem of green manuring.

The growing of various "pulses" (small beans or peas) for soil improvement is a very ancient practice, but in West Africa it was unknown until recently and had to be adapted to local climatic and human conditions. Experiments conducted by a number of West African agricultural experiment stations, especially in Nigeria, proved that the "mucuna," or Bengal bean, gave the best results, while the closely related Velvet bean is especially recommended by F. R. Irvine because of its manifold uses, as green fodder, silage crop, hay for livestock, cover crop, and green manure. Most of the natives, however, are slow to accept new methods, and prefer to grow their own legume, the cowpea, for their own use instead of for dressing the land, of which they still have plenty. They seem to prefer the hard work of making a new clearing once every few years to that of keeping the old plot in full fertility. But the slow process of educating the younger generation in the principles of rational farming, and the increasing influence of the Provident Societies, which have shown themselves willing to adopt practical improvements after their value has been demonstrated, may yet turn the native peasant from his wasteful ways to those of conservation, especially in areas where population-growth presses the problem.

AGRICULTURAL PRODUCTION

Food Crops

In the preceding section an official estimate was given of the foodstuffs production in 1930 (p. 361). Gross estimates for the years 1936-1938 in the *Annuaire Statistique* for that period, when compared with the exports for 1937, reveal the following developments.

Millet, shown in 1930 as the chief food crop (2,894,657 short tons production), is listed as "millet and sorghum" in the tables for 1936-1938, with an estimated production of 2,205,000 tons. Sorghum was evidently included in the 1930 table under "millet," as it is not specifically mentioned, but is usually interplanted with millet. Not less than 9.88 million acres of land are planted to these two crops.

Yams, second in importance in 1930 (2,313,545 tons), are not mentioned, though the natives have certainly not ceased to gather and grow them. Instead, the 1937 figures for sweetpotatoes show 740,000 acres cultivated, with a yield of 1,653,450 tons, as compared with less than 198,414 in 1930 for these and for *taros* or *cocoyams*. Possibly these tubers were lumped together as "patates" in the later table, in which case a decrease in their production has taken place. There is a marked decrease in the *banana* figures, from over 1,543,220 tons in 1930 to 722,000 in 1937, of which 60,626 were exported. Only the area used for the export crop is given: 7,410 acres.

Contrasted with this diminution in starchy food crops is an enormous increase *peas and beans*, from less than 220,460 short tons to 1,929,025, covering a cultivated area totaling 741,000 acres. *Corn* has remained at about 496,000 short tons, occupying 1.24 million acres; *rice* has increased from 377,359 tons to about 441,000, occupying

1.11 million acres of the land. Production of *cassava* (mandioca or manioc) has also increased slightly, from nearly 1.1 million to 1.3 million short tons, using about 741,000 acres. With the exception of the plantation crop of bananas, about 20,000 tons of corn, and a meager 11 tons of tapioca (from cassava starch), all these foods are grown for home consumption only.

Another crop that has assumed large proportions and is grown only for local use is *fonio* or *fundi (Digitaria exilis*, also known as "hungry rice" or "Acha grass"), the grain of which is a popular food and the hay an excellent fodder. Although production of "fodder" in 1930 is given as only 232,585 tons, fonio is given 741,000 acres and a 1.65 million-ton production in 1937.

Of the 882,000 ton *peanut* crop, covering some 2.72 million acres, about 165,000 tons is consumed locally, according to the 1930 figures. *Sesame* occupies only 24,700 acres, and yields about 1,100 tons annually, of which 423 were exported in 1937. In the same class is *copra*, grown in Dahomey over about 37,050 acres, yielding 1,100 tons, and exporting 363 tons in 1937. Some 12,350 acres are planted with *castor-beans*, but most of that crop is exported (1,032 tons of an estimated 1,100).

Palm kernels and *shea nuts* play an important role in the native diet, but are not systematically cultivated. The total farm production of the remaining foodstuffs shown in the 1930 table amounted to only about 110,000 tons, almost half of which were *cowpeas*. The preponderant farm effort, then, goes into the production of almost 10 million short tons of foodstuffs a year for nearly 15 million people, indicating an average consumption of about 1,450 pounds gross of vegetable foods, not counting foods gathered wild. Since it has been found that an average of about 1,300 pounds of foods (including milk) will support a normal individual in temperate zones, the natives of French West Africa - though occasionally subject to local want - can certainly not be said to be, as a group, at or near starvation level. Their diet may be too starchy (the French are trying to get them to change that), but it is not, as sometimes is presumed, too scanty, except in isolated instances.

Although meat is scarce, and the majority of the people consider it a luxury, the coasts and rivers of West Africa abound in fish; and even in the drier areas there is an abundance of game, so that the natives can at will supplement their vegetable diet with animal food. Only in the semidesert belt do the people live near to privation; here, however, the Niger irrigation project is rapidly establishing security for them. From this belt southward conditions improve with increased precipitation, nature rewarding richly every effort to utilize the land. Even the primitive, near-pygmy Gagus know a little of agriculture, growing coco-yams and cassava under banana trees, and in some places corn, beans, peanuts, and rice. They keep a few chickens and ducks, some dwarf-goats, and often a few sheep and the tiny forest-cattle which are more or less immune to tsetse-fly stings.

To this naturally stable food situation is now added the aid given by the agricultural service, which is constantly seeking to improve the quality and the yield of every important crop by supplying the natives with tested seeds and cuttings.[18] This distribution is handled through the native Provident Societies. Although originally these Societies were concerned with export crops only, they now consider food

[18] In the winter of 1938-39, for instance, 2,130,000 cuttings of superior-quality cassava were supplied, according to a consular report from Paris of April 14, 1939.

production as well. The future of French West Africa's food situation may therefore be considered secure.

Commercial Crops

Peanuts

Peanuts constitute by far the most important commercial crop of French West Africa. They are also widely grown as a food crop in a long belt of savanna between 8° and 14° north latitude, but Senegal produces the largest quantity for export. Soudan, connected by railroad with Dakar, is always grouped with Senegal in export statistics, and these two centers average annually well over half a million tons in exports alone.

Peanut plants are of two main kinds: the spreading, or "runner" type, and the erect type. The common Senegal kinds, known as Rufisque or Cayor, are of the runner semiprostrate type, with small, usually two-seeded, pods. They are usually grown as a sole crop rather than in mixed culture, but are often interplanted with a few rows of bulrush millet, especially in the interior. The peanuts are usually planted on the flat, or on small ridges about 3 feet apart; in the extreme north, with its short rainy season, the seed is sown as soon as possible after the first rains arrive. The plants take from 3 to 5 months to reach maturity, needing much rain during growth and much sunshine. They require careful weeding in the early stages, though the spreading type soon covers the ground and thereafter requires little further weeding. But the soil around the plants must be kept loose to enable the stems to bury the young fruit into the ground for maturing.

Since in normal times the world price of peanuts is rather low, cultivation for export requires access to ports by canoe, truck, or train; for the natives will not carry peanuts in head loads for long distances. For this reason the export production of the colonies other than Senegal and Soudan has remained comparatively negligible. Only northern Ivory Coast and Niger have contributed appreciable quantities (Ivory Coast beginning only in 1933) to the export trade of Senegal-Soudan, but in the form of shelled nuts, thus reducing freight cost to a minimum, and only from centers near roads or railroad stations.[20] Shelling has therefore developed considerably in the interior.

In 1930 all Soudan's exports were unshelled. In 1931, 1,650 short tons were shelled; in 1934, 8,047; and in 1936, 31,967. The unshelled exports dropped from 22,046 tons in 1930 to 4,960 in 1936. Niger exports shelled peanuts only - about 50,000 tons in 1936. In the same year Ivory Coast exported almost 21,500 tons. Total shelled peanuts exported in 1936 amounted to 143,768 tons, but the unshelled still figured at 445,611. The nuts stay fresh longer in the shell, so for the production of high-quality oil, the so-called Rufisque kind, France regularly needs about 275,500 tons of unshelled peanuts from West Africa, or half of the total export production. For more general use the shelled nuts will do. Dakar, with its

[19] Hutchinson, J., and Dalziel, J. M., *The Useful Plants of West Tropical Africa*, pp. 228-232, London, 1937.

[20] *Journal Industriel*, June 27, 1934.

favorable shipping facilities, exports 67 percent of the shelled nuts, but only 20 percent of the unshelled, the bulk of which is picked up in river ports like Kaolack, nearer to the producing areas.[21]

In Senegal peanuts are sown in June or early July, harvested in October or November, and marketed in December. Almost all of the export production (97.5 percent in 1937) goes to France. In normal times a large industry depends on this culture. A poor crop in Senegal affects the trade of Bordeaux and Marseilles, as well as the oil factories of France. "Marseilles soap" is but one of the many products which France prepares from this native-grown peanut, which usually yields from 43 to 45 percent of its weight in oil.[22]

This whole vast production is in the hands of native peasants, chiefly in the southern parts of Senegal. They do all the work themselves by hand, with primitive tools. "Mosaic," or rosetta-fever, is their chief worry while the plants are flowering; to find seeds that will give "mosaic"-resisting plants of high oil content has been one of the chief concerns of the Government, collaborating with the native Provident Societies in a constant effort to improve the quantity and quality of the crop.[23] "Mosaic" will spread rapidly if the plants are grown twice or more on the same piece of land; hence rotation is the rule.

The rope peanuts are dug up in dry weather, the soil is shaken off, and they are left on the surface of the ground for a day or two to dry. Then they are picked, cleaned, and dried in the sun, to be stored in tarpaulin-covered sheds or "seccos" until taken to market or used as food, or as seed for the next crop.[24] In Niger the native planter stores the nuts in family granaries instead of communal sheds; he shells them when needed for seed, with the appearance of the first rain. The Provident Societies there are now working on the problem of preserving carefully selected seed, trying out different varieties in different localities on soils best adapted to them. They seek to preserve the high fertility, and especially the high oil content, for which Nigerian peanuts are favored by the trade.

The Provident Societies in all peanut-producing areas are also trying to obtain a fairer price to the native producer. They possess considerable equipment; hence local authorities have organized a transport service from the producing centers to the markets. This service helps both the traders and the farmers by cutting out the devious practices of middlemen, who took exorbitant profits and often ignored the remoter farms altogether.

The heavy cultivation of peanuts has exhausted the soil in some districts, that of Rufisque particularly, so that experimentation with manures has become necessary. The stems and leaves of the plant itself, when dug into the soil, will largely restore soil fertility and even enrich it. The natives, however, often eat the leaves green, as pot-herb mixed with millet, and use them dried as fodder. So another approach has

[21] *Le Journal de la Marine Marchande*, May 12, 1938.

[22] *L'Univers Français*, March 15-30, 1940.

[23] In 1939, for instance, 16.5 tons of peanuts of the China variety were purchased in Algiers with funds from the Provident Societies, to be tried as seed in the southern producing centers where climatic conditions are particularly favorable. (Consular report, Paris, March 14, 1939).

[24] On March 1, 1940, over 470,000 tons were stored in these "seccos," and there was room for at least 350,000 more, according to a consular report from Paris of March 28, 1940.

been tried; that of deeper cultivation by the use of modern farm implements. Only light equipment, drawn by little donkeys, can be used at this stage.[25] Because there is much uncultivated bush left, however, the problem is not believed to be pressing.

Oil palm products

The oil palm, *Elaeis guineensis*, is a native of tropical West Africa as far south as the Congo. It grows in the moist climate of the forest region, even on the seashore, but is comparatively rare in the dense forest itself. It thrives in the more open savanna-forest area, not north of the really forested belt, but especially where the dense forest is thinned out, east, west, or south of the "selva" proper, particularly toward the sea. In Gold Coast, Togo, Dahomey, and Nigeria it has replaced large areas of the rain-forest destroyed by the natives' shifting cultivation, and grows in an almost solid belt ranging in width from a few miles to fifty or more.

The tree is not cultivated on plantations, as it grows so abundantly in the wild state, yet its spread is promoted by native planting; one might perhaps say it is a semi-domesticated tree. Of a number of European oil palm plantations in Ivory Coast only one is left, in the savanna near Dabou. In 1936 this plantation was reported to be bearing, but not utilized except for experimental purposes. The importance of the oil palm in French West Africa lies, therefore, entirely in its native use and promotion.

Figure 3.-Extracting palm oil from palm kernels. (Courtesy American West African Line.)

The fruit of the oil palm grows in bunches and contains a fibrous pericarp or pulp; this covers the shell, which must be cracked to obtain the palm kernel of commerce. The edible pericarp oil is extracted by crude native methods - boiling and treading for "soft oil"; fermentation and treading for "hard oil." The nuts are cracked by women and children to get the kernels, which are not generally used by the Africans, but sold for export and pressed for their oil by machinery, locally or in Europe. The oil is chiefly used for the manufacture of margarine, soap, cooking fats, glycerine, and paints.

[25] Baillaud, Emile, *L'Organisation economique de l'Afrique Occidentale Française*, p. 25. Marseille, 1936.

French West Africa's annual production of palm nuts and palm oil is estimated at 132,000 short tons, of which about 110,000 are exported. The principal producing areas are Dahomey (in 1937 52,030 tons of kernels and 16,609 of oil were exported), French Guinea (21,230 tons of kernels; 462 tons of oil), and Ivory Coast (13,992 tons of kernels; 5,111 tons of oil). In Ivory Coast and Dahomey a number of mechanical crushers and presses are in operation, but their production is insignificant compared with that obtained by native methods. In 1937 proposals were made for the protection and improvement of selected areas of wild palm groves, and for provision of more centers for treatment and means of transport. Some Provident Societies possess mechanical crushers mounted on lorries, which can be moved from village to village.

The oil palm is a godsend to the natives of the heavy rain belt; to the great majority of them it is their only source of money income. Palm oil and kernels fluctuate little in price, and are in steady demand; moreover, the West African native can produce them as cheaply as is possible anywhere in the world if he will improve his methods to the full extent of which he is now capable, thanks to the organization of Provident Societies.

In Dahomey the oil palm is of exceptional importance; more than half of all French West Africa's production is centered here. The palm trees are planted from sprouts gathered in the bush where the seeds of wild palm trees have fallen.

> "Once planted, the palm-tree forever remains the property of the one who has planted it, and of his descendants, even though the land on which it grows had been abandoned by himself or his heirs, and is being worked by another. In the main, this would constitute an exceptional case, for when a man has planted palm trees on his land he is loathe to allow anyone else to occupy it, and sows it with maize or beans or peanuts or some other crop which does not need the rich soil that the yams must have if they are to thrive. Every year the brush about the trunks of these trees must be cleared away before the field in which the trees stand can be burned over, for otherwise the trees would be killed.
>
> "An important reason why the palm tree enjoys this preferred ownership status is that six years must elapse before the tree matures, and during this time a certain amount of care must be given it. Once matured, however, a tree calls for little attention, bearing its kernels twice a year. The larger harvest is during the period between November and March, the smaller one between July and September. The fruit in which the kernels are contained is sold, for the actual pressing of the kernels and manufacture of the oil is a specialised technique, and even an owner of many palm trees will buy what oil he needs for his personal use. It is not strange, therefore, that this valuable source of revenue which requires so little care should hold such a high place in the Dahomean economy."[26]

The Southern Dahomey natives show care in their exploitation of the forest resources and actually carry out reforestation; moreover, their methods of palm oil collection are superior to those of most Guinea negroes. The French estimate that if all the best oil palm land were utilized, production could easily be raised to 154,300 tons of oil annually.[27]

Cocoa beans

As Senegal specializes in peanuts, so the cocoa-bean has been adopted by Ivory Coast, which produces 99.97 percent of all the cocoa exported from French West Africa.

[26] Herskovits, Melville J., *Dahomey*, v. I, p. 38, New York, 1938.

[27] Fitzgerald, Walter, *Africa; A Social, Economic and Political Geography of its Major Regions*, p. 356, New York, 1933.

The climate of Ivory Coast is ideal for cocoa cultivation, as was shown for decades in the neighboring British colony of Gold Coast; but production was not undertaken in earnest until the second decade of the present century, when Governor Angoulvant practically forced the natives to try it and stick to it. The results were so good that in 1914 the natives of Abengourou, in the eastern border zone -wwhere Amelonado planting stock had been introduced from Gold Coast - took up its cultivation as a major crop. Production spread rapidly to the south and west throughout the rain-forest belt, and in another decade cocoa was exported from every port of Ivory Coast,[28] reaching an annual production of about 55,000 tons in the late thirties.

Not until 1930 were European planters interested in cocoa cultivation, when 37,065 acres were planted by them with seedlings. This is still largely a native industry, however, chiefly because of its comparative simplicity and the great care exercised by the Government in maintaining high quality for export.

The young cocoa trees need shade and protection from violent or drying winds, and are therefore often interplanted with oil palms, plantains, bananas, or coco-yams, which at the same time provide the native with useful crops while the cocoa trees grow up. The protecting starch-food plants are gradually removed as the cocoa tree becomes stronger, and the ground is kept free from weeds. Regular pruning of all but the main branches is the only work the tree requires to bear fruit after five years for two or even three decades in succession.

The fruit is usually harvested from September to December; in addition there is a "small season" from April to June. The pods must be cut from the tree when barely ripe, so that harvesting is constant as the pods ripen. They are piled in heaps and left for three or four days, after which they are cut open for removal of the beans and the surrounding mucilaginous material. The West African farmer generally ferments the beans on the spot, covering them with banana leaves, sometimes in a fermenting box, and stirring them occasionally. After this they must be dried.

It is the care used in this fermenting and drying process that determines the value of the product for the trade, and the Ivory Coast merchants have cooperated with the Government in bringing about a vast improvement in the native methods used, by both educational and legislative means. In September 1929 the Ivory Coast Chamber of Commerce established a Bureau for the inspection of cocoa, coffee, cotton, cola, palm oil kernels, and rubber. A European expert was placed in charge and given a staff of 28 native *controleurs*, or inspectors. Expenses are paid from a voluntary tax of 12 francs per ton for cocoa. All lots of beans containing over 5 percent defective ones are either to be "reconditioned," if possible, or seized and destroyed by government order. The results have been excellent; natives were eager to be instructed by the Bureau's controleurs to prevent recurrence of seizures, and proper methods of curing and preparing the cocoa beans spread fast. The practice no longer exists of drying of cocoa beans over open, smoky fires - a custom which still persists in French Cameroon for instance,[29] with the result that its cocoa is definitely classed as inferior, while Ivory Coast cocoa is steadily improving its reputation. Mould is combated by discouraging longer-than-a-week canoe trips to the market; truck transportation and lorry-railroad shipping from the distant producing centers is encouraged instead.

[28] Report by L. J. Schwartz from Accra, May 15, 1930.

[29] *La Presse Coloniale*, April 12, 1939.

Agricultural schools have been established to teach young natives the best methods for the production of high-grade cocoa beans, and nurseries for cocoa and coffee cultivation distribute seedlings of improved type. It is this intelligent organization of the industry which has made its exports more valuable to Ivory Coast than all its other primary exports combined. In 1938 this colony's cocoa exports reached a high of 58,113 short tons, valued at the equivalent of $4,962,637; while coffee, woods, peanuts, palm kernels, cotton, and bananas together amounted to not quite $4,894,000. Most of the cocoa of Ivory Coast used to go to France, providing about half the total needs of that country; in recent years the United States has been the second largest customer, taking $933,000 worth in 1938.[30] Competition has become so keen that the cocoa cultivation of Ivory Coast is likely to have reached its limit for the time being.

Coffee

The coffee tree grows wild in West Africa throughout the forest area, as far as 8° north latitude. As with cocoa, however, it is only in Ivory Coast that coffee has been made an important export crop. The wild varieties now grown commercially are the *Liberica, Kouilou,* and *Robusta* - all varieties of *Coffea canephora;* while the *Arabica* had to be introduced and grows only in the highlands, as does the *Stenophylla,* Sierra Leona's upland coffee, grown much in French Guinea. Another kind, the *Excelsa,* is cultivated in Indenie in east Ivory Coast. As in the case of cocoa, the cultivation of coffee began in a small way, this time in the west of Ivory Coast, and spread east along the lower and middle Coast and into the mountainous area of Man, which is suitable to the *Arabica.* At first only the Liberian variety was used; gradually, however, all kinds were experimented with and emphasized in different regions according to the best local results obtained. The largest production is of a disease-resisting type called *Assikasso* or *Gros Indenie.*

In contrast with cocoa cultivation, that of coffee was inaugurated by European planters, while the natives took no interest in it until the last decade. Attracted by French-protected coffee prices, they began to plant coffee seedlings furnished to them in enormous quantities by ambitious district administrators. In 1935, for instance, a hundred million such seedlings were obtained by the nurseries of the Provident Societies for distribution among their members. Without much knowledge or system coffee was grown in thousands of little clearings in the forest. Crickets and borers, especially the *Scolytus,* ruined the trees in appalling quantities and threatened the European plantations as well. The white planters felt that coffee should not become a native culture, and did little to improve native production. The white producers are customarily small planters themselves - ex-government employees, traders, and agents, who have little capital and whose plantations rarely cover more than about 500 to 700 acres. The Government found it practically impossible to make an inventory of the innumerable little native plantations in the jungle; and thus for years the coffee industry of Ivory Coast presented a confused, disorganized picture. In this struggle the fittest survived, among both European and native plantations. In 1939 production approximated 16,500 short tons; it was expected to reach 22,000 by 1941. Practically all coffee exported goes to France, though a little is shipped to Algiers.

[30] Report by Mr. Francis B. Stevens, August 2, 1939.

The coffee tree is kept artificially low, so that the berries can be harvested by hand, and is usually interplanted with vegetables or other food plants for reasons of economy and protection and to keep the soil free from weeds. Sometimes the *Robusta* is planted as a catch crop between other varieties, for it will bear within two years, whereas most of the others require up to five years to mature. The berries are picked when ripe, and either dried before "hulling" or bruised wet and fermented, after which the beans are washed free from the pulp, drained, and dried. The dry process is better for the beans, but since the wet method is quicker and easier, most plantation coffee is prepared in that way.

In January 1938 strict inspection of all coffee shipments was decreed. Coffee without inspection certificate is refused. The European planters now have their own appropriate premises and plants for the proper preparation of the coffee they grow. The native planters have theirs treated by the Provident Societies, which have established equipment throughout the lower Ivory Coast.[31]

The production per acre varies greatly according to variety. A young plantation reported a yield of 71 pounds of *Arabica*, compared with 265 pounds of *Canephora* and 177 of *Excelsa*.[32] In the trade, varieties tend to become obscured by the practice of distinguishing chiefly between small beans (like *Arabica* and *Kouilou*) and large ones (like *Liberica* and *Gros Indénié*).

Shea products (*karité*)

The shea butter tree, *Butyrospermum parkii*, is a typical Sudan tree, a native of the savanna. It is estimated that there are 17 million in French West Africa. The tree sheds most of its leaves in the dry season, and generally drops its ripened fruit in May. The fruits are green and contain generally one or two nuts, embedded in a sugary pulp which is edible when ripe. They are gathered in heaps and allowed to ferment, after which the kernels are taken out and dried. By a complicated process of roasting, pounding, treading, boiling, and separating, the oil is extracted and stirred until it begins to thicken. This is the shea butter of native commerce. Shea butter is exported in metal containers and further refined in Europe by treatment with steam or washing with alcohol, which makes it suitable for European cooking purposes. If not treated locally, the dried kernels are sold by the natives and the oil is pressed out in Europe by modern machinery. This produces a better product, unless the kernels have become too high in free fatty acids because of careless storage before shipment, becoming germinated, or the mixture of fresh nuts with the dried ones. The fat content of the kernels is usually from 45 to 55 percent by weight, but varies considerably; 46 percent is the brokers' standard.

The shea butter tree is to the Sudan what the oil palm is to the Guinea Coast forest area. It thrives under human protection, and is found in or near every savanna village where it may escape the grass fires of the open bush. Its deliberate cultivation in plantations is exceedingly rare, probably because it is a tree of slow growth and difficult to propagate. In 1939 the French Government announced plans for *karite* plantations in specially selected regions most suitable for its cultivation. The best

[31] Consular report from Paris, June 1, 1939.
[32] *L'Informateur Colonial*, May 1939.

fruit of the May-June crop of that year was to be "unpulped" and carefully preserved, to be sown as soon as the winter season set in. The seeds would be spaced in lines 33 feet apart. The Agricultural Service would establish and inspect these plantations, and the ground between the trees could be used for other cultures. This may be the beginning of systematic *karité* culture in the Sudan.[33]

The native shea butter production appears to be entirely in the hands of women and children. The shea butter tree plays an important role in the native economy, but its role in export trade is still minor. Only Ivory Coast and Dahomey export considerable quantities of shea nut kernels; in 1937, out of 17,572 tons of total exports, Ivory Coast contributed 9,317 and Dahomey 7,853. Of the 7,338 tons of shea butter exported, Senegal-Soudan took the lead with 3,382 tons, while Ivory Coast and Dahomey followed with 3,227 and 703 tons respectively; the remaining 26 tons came from Niger. Belgium is the biggest customer, with France and the Netherlands ranking next.

Bananas

Bananas as a commercial crop are almost entirely in the hands of European planters, and were therefore discussed in a previous section. It may be added here that although the French Guinea plantations are chiefly in the hands of Paris corporations, those of Ivory Coast are younger and for the most part belong to planters of more modest means. In quantity French Guinea still has a considerable lead, in 1938 exporting 58,270 tons, of which only 1,673 went to non-French countries; Ivory Coast in the same year exported 13,528 tons, all to France.

Banana planters encounter two difficulties in French West Africa apart from the usual problems of fighting pests. One is that of transporting the fruit from plant to boat without damaging it: the Chinese or Canary banana is particularly delicate and cannot stand much handling. The other problem is that of getting enough reliable native help. In general the West African dislikes to work for the white man for wages. There is need for 20,000 more laborers in Ivory Coast, the planters there estimate, if they are to make full use of their concessions. Half of these laborers could be recruited from the forest; the other half would have to be imported from the Sudan area. But even if the laborers are hired, they cannot always be counted on. Frequently when they have received their pay they spend it at once drinking and gambling, and then do not feel like working the next day. In fact, having no means of support left, they often disappear without a trace, back into the comparative safety of the jungle.

Cotton

For at least a thousand years the Sudan has grown and woven its own cotton, wherever Moslem influence succeeded in its fight with nudity. In the sixteenth century Arab writers report that Timbuctu had 26 shops in which some 1,500 workmen made cotton clothing, which was sought by Moor and European trade alike. At that time the native cotton industry reached its fullest bloom.[34] Today the efforts of the French have brought it into renewed prominence, and cotton exports rose from about 550 tons in the early twenties to over 4,400 in 1929 and 1930, falling to 1,517 in 1932 and

[33] *Bulletin Officiel du Ministere des Colonies*, June 8, 1939.

[34] Monteil, Charles, *Le Coton chez les Noirs*, pp. 3-46, Paris, 1927.

then rising again to 5,299 in 1938. Yet the native consumption of cotton in Senegal and Soudan far outweighs their exports, while for the other colonies it is by no means negligible.

The irrigation project of the Niger in 1936 planned a ten-year program, expecting to have 175,000 acres under cultivation by 1946, of which 75,000 were to be devoted to cotton, yielding annually 10,000 short tons unginned.[35] The financing of this scheme was provided for by law, and although it is likely to have been interrupted by the present war, it indicates that the French meant business when they decided to make French West Africa grow their cotton.

The French are faced with a number of difficulties, however. One of these is the competition of more remunerative crops. In middle and lower Ivory Coast, for instance, cotton of the Ishan variety brings only between 120 and 160 francs per acre, while cocoa and coffee bring between 400 and 800 francs. In Senegal, Soudan, upper Ivory Coast, and upper Dahomey, peanuts will bring between 200 and 325 francs per acre, whereas cotton - of the Budi or Allen varieties - brings only from 40 to 80 francs. There is also the difference in price for the cotton sold for francs in the export market, ranging from 0.38 to 0.68 franc per pound unginned, and that bartered or sold for cowry shells in the native market, where it brings the equivalent of 1.37 francs. A third difficulty is that in order to keep out diseases and produce a sufficient yield of the exportable varieties, even irrigated cotton must be planted in rotation, once every four years; hence only 25 percent of a farmer's land can be used for cotton. It is not surprising, therefore, that only government pressure and assistance can make the natives grow increasing quantities for export, and that the elaborate plans for this crop will be hard to realize.

Apart from the cooperative scheme used in the area under control of the Office of the Niger (pp. 366-368), there is some private European cotton cultivation at Diré near Timbuctu, worked with wage labor and evidently unable to make ends meet without government aid. Otherwise cotton growing is practically in native hands.

The native varieties differ greatly in fertility, as well as in length of fiber, which ranges from about 7/8 to 1 1/8 inches. Poorest yields are 53 pounds per acre; best yields are 177 pounds. Percentage of fiber runs from 15 to 30 percent. The best is grown in Dahomey, with an average yield of 106 pounds, 28 percent fiber, and length of fiber 1 1/16 to 1 1/8 inches. These figures are all for dry cultivation. For imported varieties the following figures are given:

	Average Yield *Pounds*	*Percentage of Fiber* *Percent*	*Length of Fiber* *Inches*
Ishan	220	30-31	1 1/16-1 3/32
Budi	160	30-31	1 1/16-1 3/32
Allen	140	27-28	1 1/8 -1 1/4

In Ivory Coast the Allen variety does best, yielding from 177 to 220 pounds per acre of good-middling quality. These are not experiment-farm figures (which show a yield twice as large), but those of normal native production.

On irrigated land the yields may reach 830 pounds per acre, giving about 265 pounds ginned; but the normal yield is much less: 497 pounds in the 1937 campaign.

[35] Levis, Davis B., American Vice-Consul, Paris, in a report entitled, "Annual World Cotton Survey, French West Africa," p. 3, July 30, 1937.

The outstanding performance comes from the Hirsch plantation at Diré, already mentioned, where yield per acre is 1,060 pounds, giving 350 pounds of fiber with a fiber length of from 1 5/16 to 1 9/16 inches. Since October 1938 the Colonial Cotton Association in cooperation with the Colonial Institute at Havre has made efforts to grade French West African cotton carefully.[36]

Not only in Soudan but also in Senegal irrigated lands are developed for cotton culture. In 1940 plans for 123,500 acres of such lands were announced, expected to bring the total cotton crop in the Senegal river valley to 3,300 tons eventually.[37] The conditions are so favorable here that at the experiment station of Diorbivol last year the astounding yield of 2,030 pounds per acre was recorded for "Mexican big boll" cotton.

This astonishing contrast with native yields is explained largely by the native methods of cultivation. In the Sudan zone cotton is sown between millet or corn as soon as this grain comes up, and seeds that do not happen to fall in good spots on well-mellowed soil will naturally produce only stunted plants. If sown broadcast on yam hills or ridges, the ones near the top do much better than the others. In August the corn is harvested; in September the millet. Up to then the cotton plants have been kept thin by these food plants; thereafter they take on vigor, but receive no attention whatsoever.

The harvesting of the cotton, begun in mid-November and continued until March or April, is done entirely without system, according to the fancy of the women and children who have charge of it. Many bolls fall to the ground, while sun, dust, and night-dew take their toll. Moreover, only what is expected to be used is actually gathered. Before storing, the cotton is dried in the sun, usually on top of the hut. Then the sheep and goats are let into the field and make short shrift of the remaining dried-out stalks. Under these circumstances it is easy to see that estimates of yield are hard to make, but that native cultivation ordinarily gives poor results. When the native farmer grows cotton by itself and takes the trouble to bury the seeds as he sows them, the yield is double that obtained by mixed cultivation.

Sisal

Although the yield of sisal fiber on West African soil is only half of what it is in East Africa, some enterprising Frenchmen started *Agave* cultivation about four decades ago and persisted in spite of all setbacks, without any encouragement or assistance from the Government. These men have three fine plantations now, the biggest of which is near Kayes, stretching over twelve miles along the Senegal River. In 1939 the Kayes planters expected to gradually bring another 2,500 acres under cultivation, which was to insure an additional income of about 6,000 or 7,000 francs to a thousand workers.

Native cultivation has recently been encouraged in the vicinity of the European plantations. The latter provide seedlings and expect to purchase the native crop if instructions are followed; they will also place the necessary heavy equipment at the native planters' disposal. This is considered an important step toward a policy of

[36] Consular report from Paris, January 5, 1939.

[37] *Bulletin Quotidien de l'Afrique Occidentale Française*, February 27, 1940.

white-native cooperation that will not cause the natives to become servile or to abandon their mode of living.[38]

Exports of sisal amounted to 4,840 short tons in 1937 and 4,940 in 1938, having remained steady since 1934. Senegal and Soudan provide more than two-thirds of the total. Englandnnormally takes about 30 percent of the sisal exported. This "forgotten" culture figures at around 7 million francs annually in export statistics.

Other fibers

The most widely cultivated fiber plant in the open country from Senegal to Nigeria is Gumbo hemp or "Java jute" *(Hibiscus cannabinus)*, which also grows wild in French Soudan. Next to cotton it is used most for local needs, especially for cordage in the east. *Kapok* from the silk-cotton tree *(Ceiba pentandra)* is gathered in considerable quantities. Over 1,100 tons are exported annually to France. The seeds of this tree are ground and eaten by the natives, who use the flowers as medicine, in addition to the wood and the bark, which contains tannin. The tree is classed among the sacred trees in pagan folklore. *Palmetto* is beginning to be cultivated in French Guinea and Ivory Coast, but is at present of importance only in Dahomey and Togo.[39]

Minor commercial crops

Corn is grown on an extensive scale only in Dahomey. In 1937 that colony exported 20,204 tons, 18,767 of which went to France. *Sesame seed* is grown in French Guinea and Ivory Coast, where it is known as beniseed. The plant, though called *Sesamum indicum*, is a native of tropical Africa and important in the native diet. Only 423 tons were exported in 1937. Production is entirely in the hands of natives.

Castor beans grow wild or semicultivated in the whole savanna area. Only in Dahomey are they grown for export. In 1937, 1,030 tons were shipped to Marseille. *Coconuts* are also grown in Dahomey only, for export as *copra*, of which 363 tons were sent to France in 1937. The coconut palm is a stranger to West Africa, but seems to do well if it receives at least 40 to 50 inches of rainfall annually.

Tobacco is grown over a wide area throughout the Sudan near villages and wells, which facilitate daily watering. Most of the tobacco grown is consumed locally for smoking or chewing, in the form of balls, leaves, or powder; only 180 tons of leaf-tobacco were exported in 1937, whereas 1,414 tons (chiefly from the United States) were imported. All tobacco manufactures are imported.[40] *Capsicum* or pimento, also known as Guinea pepper or Guinea pods, is cultivated in numerous varieties of many shapes and colors throughout West Africa.[41] Only 125 tons were exported in 1937, most of it grown in French Guinea and Dahomey.

[38] Van Slaars, Sidney, American Clerk, Paris, in a report entitled, "Sisal Production in the Sudan (French West Africa)," June 12, 1939.

[39] Consular report from Paris, April 9, 1940.

[40] Consular report from Paris, March 26, 1940.

[41] The name "Guinea pepper" is also applied to *Aframomum melegueta*, or "Melegueta pepper," the native condiment that used to be famous in trade as the "Grains of Paradise" or "Guinea Grains." It is also used to indicate the fruit of the spice tree, *Xylopia aethiopica*, with which the Capsicum peppers are often mixed as an insecticide. In statistics they are rarely distinguished, but "poivrons" (pods) or "piments" are used for Capsicum. (Hutchinson and Dalziel, *op. cit.*, pp. 427-428, 471).

Indigo grows wild in the savanna area. The leaves are used to make a blue dye. It is also grown for export, and makes an excellent cover-crop and soil-restorer. French Guinea provided 289 and Dahomey 39 of the 331 tons exported in 1937.

Cola nuts grow wild in the savanna-forest belt, and were of great importance in the native economy long before Americans made a national beverage of them. Outside demands have led to export and deliberate cultivation. In 1937, only 103 tons were sent abroad, but in French Guinea and the middle Ivory Coast about 494,200 acres were planted with over 8 million trees,[42] so that far greater exports may be expected in the near future.

Juicy fruits: A considerable quantity of *pineapples* (104 tons in 1937) is sent to France each year, almost wholly from French Guinea and the Ivory Coast. Pineapples, though not native to West Africa, do so well there that in the drier forest area they grow wild in profusion. In recent years efforts have been made to develop a *citrus fruit* industry in French Guinea. The sweet Guinea oranges seem to promise most for the near future; West African grapefruit is still too seedy to compete with the Palestine product in France.[43]

The citrus industry, centered in the Futa-Jallon area, is still experimenting with different varieties. When it was difficult for France to obtain oranges from other countries, French Guinea growers took their chance. In April 1939, 46,766 pounds of fresh oranges were shipped to France, great care being taken in wrapping and packing the fruit. *Orange oil*, however, is the older and more important product. Natives obtain it by the primitive method of scraping the rind with a spatula. In 1928 only 110 pounds were exported, but in 1936 this had risen to 260 short tons, valued at $212,343.[44] Annual production now fluctuates between 220 and 330 tons. Last year an attempt was made to utilize the scraped fruit, hitherto wasted, for the manufacture of *jams* and *alcohol*, made possible by quick shipment to cities like Dakar, equipped for such conversion.[45] *Mandarines* too are now cultivated for export.

Lumber: Only in Ivory Coast is the logging industry of importance. The Guinea forests have comparatively little of the more valuable woods and those are too far from the sea for economic transportation. In Ivory Coast some 30 million acres of forest are suitable for exploitation, yet here too development is retarded by the problems of transportation. The desirable species - mahogany and a dozen other cabinet-woods - are scattered among innumerable others.[46] Yet in 1937 over 51,000 tons of cabinet woods and nearly 38,500 tons of common woods were exported from this colony. In 1930 cabinet-wood exports reached an all-time high of 117,000 tons. Only in recent years has concern for the forest resources led to action; by April 1940, 8,379,000 acres of forest land had been reserved by the Water and Forest Service. Cutting or burning without authorization is now prohibited, and planting of desirable species has begun.

Gums: *Gum arabic* is an exudation from the bark of the *Acacia senegal*, a tree characteristic throughout the drier parts of the Sudan. It is often little more than

[42] Letter from consul H. Freeman Matthews, Paris, to inquirer in Washington, D. C., August 5, 1938.

[43] Van Slaars, Sidney, American Clerk, Paris, "Consumption of Guinea Oranges in France," May 23, 1939, and "A New Industry in Guinea Exportation of Grapefruit," December 29, 1938.

[44] Gannett, Taylor W., American Vice-Consul, Paris, in a report entitled, "Possibilities of Citrus Fruit Production in French West Africa," May 23, 1938.

[45] Consular report from Paris, April 12, 1940.

[46] Consular report from Paris, March 29, 1938.

a shrub, scattered or forming thickets, occupying wide sandy areas or dunes in parts of Senegal and Mauretania, sometimes in pure stands. The gum is collected and taken to markets, chiefly in North Senegal, of which Podor is the most important center. Annual exports vary; in 1937, 6,294 tons of the hard variety were exported and 816 tons of the crumbly kind, but in 1938 heavy rains caused a poorer product, and much less gum was exported. Then the Forestry Service began propaganda for protection of existing stands and the development of gum plantations in the Podor area. Most of the exports go to France, via Senegal; a small percentage is still taken north by caravan, especially from Niger.

Gum copal is largely a forest product, gathered from the copal tree in French Guinea during the dry season. Cuts are made in the bark, the clear gum exudes, and hardens in a few months. Only 92 tons were exported in 1937. No deliberate cultivation seems to be planned.

Rubber: The native West African rubber tree, *Funtumia elastica*, was of considerable importance at one time and was deliberately cultivated. At present *Funtumia* cultivation has been superseded by the Brazilian *Hevea*, much more in demand. Rubber exports from French West Africa amounted to 1,769 tons in 1937, of which 1,544 tons were provided by French Guinea and 222 by Ivory Coast. In some years export premiums are paid to rubber producers to encourage production.

Livestock

Nearly every family in French West Africa owns a few head of sheep and goats; cattle, however, are fewer, and their number indicates the owner's wealth. In the north is found the zebu or Indian ox, white or silver-grey, with a hump and a large dewlap. In the south the prevalence of the tsetse-fly keeps out the large cattle, but a nearly immune breed of dwarf-cattle is found even in the forest, kept almost entirely for ceremonial purposes or for dowries. In the middle region occurs a humpless variety, a product of cross-breeding between the two extreme types. The large northern cattle may be divided into long-horned and short-horned breeds; the long-horned are chiefly associated with the nomadic mode of living. All are very docile and slow-growing, and with few exceptions the cows give very little milk.[47] Only the Fulani herdsmen practice some selection of sires to maintain the desired type, but all the cows are used for breeding, since numbers are the first consideration.

The Government is trying by selective breeding to obtain a type that will combine heavy milking cows with good working bulls. The native breeds are hardy, but only settled farmers feed their cattle in the dry season; most animals in the north annually go through a period of near-starvation, and have calves only once every two years.

Horses are found only in the north; especially the Fulanis in Mossi have many little horses of several good breeds. But loads are carried chiefly by donkeys, of which there are far more. Table 3 shows the numbers of livestock in French West Africa in 1938.

Characteristic of livestock distribution in French West Africa is the absence of pigs from the Mohammedan northern colonies and the ubiquity of sheep and goats, which

[47] This is attributed by some authorities to mineral deficiency of the ordinary bush grasses. Faulkner, O. T., and Mackie, J. R., *op. cit.*, p. 20.

in many districts provide the only meat for consumption. According to the 1930 census nearly 750,000 of the 890,000 animals slaughtered were sheep and goats; 684,000 were exported alive. Even dogs are fattened and eaten, as are poultry, found in every compound and sold in every market. Guinea fowl, turkeys, and guinea pigs are also included in the domestic livestock of West Africa. Bees are kept in large quantities. Their hives are usually in trees, and children collect the honey. It is children, too, who tend to the smaller livestock, which are kept in the compound when the crops are standing. All these creatures provide not only domestic needs, but a considerable export trade. In 1937, for instance, over 317,000 cattle, sheep, and goats were exported; 2,833 tons of hides and skins; 544 tons of wool; 476 tons of honey; and 450 tons of wax.

TABLE 3.—*Estimated numbers of livestock in French West Africa, 1938*

KIND	SENEGAL[1]	SOUDAN	GUINEA	IVORY COAST	DAHOMEY	NIGER	MAURITANIA	TOTAL FRENCH WEST AFRICA
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*	*Thousands*
Cattle	310	1,270	430	240	180	760	210	3,400
Sheep and goats	100	4,900	200	900	400	2,700	1,800	11,000
Horses	36	158	2	16	2	63	3	280
Donkeys	50	150	-	30	0.5	160	60	450.5
Camels	6	33	-	-	-	55	67	161
Pigs	14	-	3	36	37	-	-	90
Total	516	6,511	635	1,222	619.5	3,738	2,140	15,381.5

[1] Figures for Senegal do not include cattle, horses, donkeys, and camels less than 3 years old.

Annuaire Statistique de l'Afrique Occidentale Française, p. 42, 1936-37-38.

INDUSTRY, TRADE, AND TRANSPORTATION

Native Industries

Native industries vary with tribe and environment. Even the most primitive forest people have recently learned the art of weaving and indigo-dyeing their cotton; but they have always excelled in weaving with various vegetable fibers gathered in the jungle. The weaving of mats and baskets of palm-leaf ribs is universal. Handles, mortars and pestles, drums, statuettes, and masks are made of wood. Even the simplest tribes know a little of pottery and forge their own hoes and hatchets. Many trinkets are made of ivory. All natives know how to extract palm oil and how to make palm wine from its sap, obtained by trunk-incisions which usually kill the tree.

The Mossi of the Upper Volta region typify the more highly developed tribes. Weavers and dyers are professionals with them, as are the male tailors and the husky iron workers. Pottery is practised by women, and kilns are used for firing a number of pots at a time.[48] Stoneworkers inherit from neolithic times the art of making

[48] The same is true in Dahomey; a good description of these native industries is found in M. J. Herskovits' *Dahomey*, v. I, pp. 44-50, New York, 1938.

mortars for the milling of grain. Builders (for the Mossi does not build his own home), woodworkers, basketweavers (who also make straw hats), brassworkers, and tanners, who are also shoemakers and ornament-workers, using not only leather but leopard skins and crocodile hides as well - all these are found among the Mossi.

Figure 4.-Hausa man weaving strips of native cotton cloth. (Courtesy American West African Line.)

The smiths smelt their own iron from local ore in a primitive but effective blast furnace, and are adept at making all sorts of arms and utensils, even to complex instruments like pliers, files, and shears. They are grouped in separate villages. The statuettes made here are cast by the "lost-wax" process found in all the native kingdoms to the east of Mossi. In the Sudan west of Mossi this casting art is not known, but iron-smelting is common.

An important need, salt,[49] is provided for in the north by importation from the desert mines of Taoudenni, caravans bringing the salt to Timbuctu between November and March. A bar or slab weighs about 60 pounds, and sells for five times more money in August than at the beginning of the season. In the south salt is made from sea water on the shallow coastal lagoons, especially in Dahomey. Finally, native women have a method of extracting salt from the earth by filtering a mixture of clay and water and evaporating the drippings.[50] Women do many things that in this country would be considered men's work: women traders are many, especially in fish, fancywork, and articles of dress or ornaments; women not only attend to the home crops when their menfolk are laboring elsewhere, but also carry the money crop to the nearest store or town, on their heads and frequently in heavy bundles.

Gold

Since Carthaginian times the true "Rio de Oro" (present misnomer for Spanish Morocco) was the Senegal River. Between its double sources, the Bafing and the Falime,

[49] Salt is also sold to neighboring territories. In 1937 not less than 710 tons were exported, mostly from Niger. (*Annuaire Statistique de l'Afrique Occidentale Française*, 1936-37-38, p. 70.)

[50] De Chetelat, Eleanor, "My Domestic Life in French Guinea," *National Geographic Magazine*, pp. 695-730, June 1935.

lies the gold land of Bambouk, where century after century native goldseekers have taken treasure from the soil. A little further below, on the river at Kayes, the early sea traders from the Mediterranean obtained by silent barter "the principal product of the black countries," and in the Middle Ages a steady stream of gold went north by caravan from the black empires of Ghana, Melli, and Tekrour, or Tukulor. But the black gold miners always surrounded their work with mystery, thus keeping it to themselves, until the French penetrated and began to rule Bambouk. Today the largest center of the gold industry is the Siguiri district in northeast French Guinea, which in 1937 produced 6,867 of the 8,801 pounds of gold exported from all French West Africa. The value of the export was approximately $4,855,200.

Mining is still entirely in native hands. A cylindrical shaft from 8 to 10 yards deep is dug by the men with a pick to the gold bearing level, in alluvial earth. Then side galleries are excavated, the ore brought to the surface, and washed in pans by women. Such mining can only be done with a low ground water level, and must therefore be carried on in the dry season. But in those four months (the dry season) some 70,000 persons are engaged in gold mining; 40,000 from the district, the rest chiefly migrants from Soudan. The village chiefs organize the work through mine chiefs whom they appoint, and small groups - usually three men and three women - work a mine. The gold found by each miner is his own; the chief's only advantage is that he can reserve some choice locations for himself and his family. The devaluation of the franc and the elimination of grafting middlemen - the *diulas* - have made gold-mining profitable again. It is estimated that a miner makes between 500 and 1,000 francs beyond his expenses in a normal season. The industry is likely to expand as a result of new roads, easier travel for workers, and an increasing use of sluice-boxes; but no change in the native organization or methods is envisaged.[51]

Home Markets

The native market is not only the principal medium for the exchange and distribution of goods, but also a center for the social and religious life of the people. Markets are held frequently - the Dahomeans have one every week in the chief centers, but their week lasts only four days - and stand under the protection of a particular spirit. In each market there is a sacrificer to invoke divine good will for the transactions, a market-chief to insure fair dealing, and a small police force to prevent marauding. Innumerable donkeys bring loads too heavy for women to carry. Everything in native life that is transportable can be found in the market, in the bigger ones even such evidences of European contact as bicycle repairmen and tailors with European sewing machines, whose shops are permanently located on the market place. In addition to these periodic markets there are permanent subsidiary ones, almost entirely restricted to food staples, and varying in size from the "evening markets" of the big towns to those where two or three women sit under a tree at the juncture of two bush paths. These subsidiary outdoor shops are not regarded as falling in the same category as the great gatherings to which the word "market" is properly applied.

Barter is common, while not only French money but cowry shells, millet, and cotton cloth serve as media of exchange. The cotton cloth is woven in narrow strips up to 6 feet long, on native looms - which for centuries have resisted all innovations -

[51] *La Chronique des Mines Coloniales*, June 15, 1938.

and valued according to quality, color, and width (from a few inches to 15 inches). The strips are also frequently sold sewn together into a "pagne" (loin-cloth), which represents big money: fifty "pagnes" is the normal price for a horse, a cow, or a slave. Cowry shell money comes from the East Coast, and is liked because it stays good; the unit of millet money is the *moudd*, or "44 average handfuls."[52]

Thus almost all necessities can be obtained without what we call "money"; such a system affords great protection against the world's rapid exchange fluctuations.

Western Industries

French West Africa has no large modern industry. In Dakar are found half of the western industrial plants established so far, such as moderate-sized mills for pressing peanut or palm oil, some connected with soap manufacture; beverage plants; lumber mills; a biscuit factory; a foundry; a candle factory; and repair shops for ships and autos. Protective duties prevent competition with the vegetable oil industry in France; all Senegal plants together have only 22,000 tons maximum capacity (6,600 tons are exported to Algeria; a good deal is used domestically), whereas France produces between 385,000 and 440,000 tons.

Dakar has a large refrigeration plant, enabling export of frozen meats and fish; almost all larger centers have ice plants, soft drink plants, perhaps a brewery, and an electric power plant. Rufisque has a cement plant. All over the country are cotton gins, rice mills, sawmills, and similar establishments involving only simple processes.

There are some distilleries for essential oils, and some brick and tile factories; at Bouaké in the central Ivory Coast a cotton spinning mill operates. A number of western needs are provided by native craftsmen who produce excellent cabinet work, jewelry, cutlery, arms, tools, and souvenirs.[53]

Foreign Trade

According to official statistics of 1938 (the latest year for which official figures could be obtained), total exports from French West Africa in that year were valued at $40,757,000, of which France took 79 percent, the United States 4 percent, French colonies 3 percent, Germany 3 percent, the Netherlands 3 percent, and the United Kingdom 2½ percent. Principal products exported were peanuts (valued at $17,728,000); cocoa ($4,963,000); gold ($3,379,000); palm kernels ($3,040,000); coffee ($2,236,000); bananas ($2,059,000); cotton ($660,000); palm oil ($646,000); mahogany ($599,000); cattle ($233,000); and sisal ($227,000).[54]

Of these exports the United States took 1.5 million dollars' worth, chiefly in cocoa ($933,000), shea butter ($172,000), mahogany ($119,000), and palm kernels ($95,000); the remainder included orange essence, wax, sisal, pimentos, other woods, and gum arabic.[55] With the stopping of service to Dakar by the American West African Line last year, American trade has presumably ceased altogether.

[52] Monteil, Charles, *op. cit.*, pp. 51-87.

[53] Consular Report from Paris, March 29, 1938.

[54] *Annuaire Statistique de l'Afrique Occidentale Française*, 1936-37-38, and U. S. Department of Commerce statement of September 5, 1940.

[55] From enclosure to a despatch by Mr. Francis B. Stevens to the U. S. State Department, August 2, 1939.

Total imports into French West Africa for 1938 were valued at $46,833,000, of which France supplied 59 percent, French colonies 6½, the United States 6 ($2,915,000), the United Kingdom 6, Belgium 4, Germany 3, Japan 3, and the Netherlands 1. The principal imports, in order of value, were textiles (mostly cotton goods); machinery and other metal manufactures; autos, trucks, and parts; petroleum products; alcoholic beverages; rice; sugar; rubber manufactures; tobacco; iron and steel; cement; wheat flour; coal; paper goods; toiletries; and medicines.

The United States provided gasoline ($632,000); leaf tobacco ($388,000); motor trucks ($298,000); other metal products ($264,000); refined mineral oils ($194,000); lubricating oils ($163,000); and wheat flour ($137,000). Our other contributions were motor cars, parts, and accessories; cigarettes; agricultural machinery, including tractors; other machinery; electrical apparatus; fuel oil; and miscellaneous goods.

French West Africa and the World Depression

Trade with France outranks that with all other countries combined. As France was affected by the economic depression of the thirties, so were her colonies. The gold standard was abandoned, and the value of the franc dropped sharply. It stayed at the equivalent of 6.6 cents in 1934 and 1935; dropped to 4.7 in October 1936; to 3.8 in July 1937; to 3.3 in December 1937; and to 2.8 in May 1938. It kept falling, with a momentary lift in September 1939, rreaching 2.2 cents by the end of 1939 and as little as 2.0 cents by the middle of 1940. In considering the following table this decline in value should be kept in mind, as well as our dollar devaluation in 1933.

TABLE 4.—*Value of exports from French West Africa by groups of products, 1931 to 1937*

[*In millions of francs*]

GROUPS OF PRODUCTS	1931	1932	1933	1934	1935	1936	1937
Agricultural products	420	273	294	368	477	658	905
Gathered (wild) products	160	81	60	53	93	95	199
Products by breeding, hunting and fisheries	45	30	31	32	28	29	43
Mineral, industrial, and other	35	61	70	80	100	145	227
Total	660	447	455	533	698	927	1,374
Livestock	26	24	21	18	15	18	28
Hides and skins	12	5	7	6	7	5	6
Fishing products	3	2	3	2	2.6	3	8
Grains	–	0.2	0.3	1.4	0.7	2	12
Fresh fruits	13	18	21	25	27	42	53
Oilseeds	363	207	215	291	412	559	709
Colonial foodstuffs	70	83	73	74	84	105	191
Vegetable oils	43	20	12	13	26	42	66
Vegetable essences	18	9	7	7	10	13	19
Woods	37	20	19	17	16	15	32
Textiles	34	15	17	21	21	19	28
Mineral products	12	25	27	38	49	48	120

Annuaire Statistique de l'Afrique Occidentale Française, p. 66, 1936-37-38.

TABLE 5.—*Foreign trade of French West Africa, by quantity and value, 1913 and 1929-1938*

YEAR	QUANTITY		VALUE IN -			
	IMPORTS	EXPORTS	FRANCS		1913 GOLD FRANCS	
			IMPORTS	EXPORTS	IMPORTS	EXPORTS
	Thousand short tons	*Thousand short tons*	*Million francs*	*Million francs*	*Million francs*	*Million francs*
1913	358	421	150	125	150	125
1929	543	818	1,380	1,176	281	239
1930	706	948	1,398	1,102	284	224
1931	486	776	724	660	147	134
1932	372	465	575	447	117	91
1933	379	784	586	455	119	94
1934	427	1,004	546	533	111	110
1935	495	890	662	698	134	142
1936	786	1,271	903	927	160	175
1937	1,032	1,586	1,535	1,374	187	168
1938	[1] 615	[1] 1,100	[1] 1,627	[1] 1,416	140	124

[1] Bunkering coal is not included in 1938 figures; it amounted to 205,000 tons worth 30 million francs.

Annuaire Statistique de l'Afrique Occidentale Française, p. 127, 1936-37-38.

Thus it is seen that, although hard hit in 1932, the country made a steady comeback until 1937, which was a peak year. It may not so well weather the new world crisis, since its trade has been disrupted by the British blockade.

Transportation

Ports

French West Africa's chief product, peanuts, is shipped from several Senegal river-ports (of which *Kaolack* is the most important), as well as from *Dakar*. *St. Louis*, once the capital, has lost most of its significance as a port to Dakar. *Conakry* is French Guinea's seaport; *Sassandra* and *Port Bouet* serve Ivory Coast; *Cotonou* is the outlet for Dahomey; and *Koulikoro* is the chief inland port at the head of the Dakar-Niger railway.

Dakar outranks all these ports; in fact, it is the third port in the whole French Empire, surpassed only by Marseille and Havre. No cost has been spared in making it the chief import, export, revictualling, and refueling port of the South Atlantic Ocean. Dakar is 2,360 nautical miles from Cardiff, Wales, only 2,761 from Rio de Janeiro, and 4,000 from Capetown. For voyages between Europe and the Southern Hemisphere it is cheaper to take more freight at the outset and to coal again in Dakar than to take all the coal needed at the home port and so cut down on the pay-freight. The same is true for fuel oil and water. In addition, perfect revictualling is possible at Dakar, which has an extensive "European" truck-garden district in the immediate vicinity and can get meat and tropical foods and fruits in abundance from its hinterland. Equipped with dry dock and repair facilities for big ships, Dakar can

meet every emergency. Storage tanks for fuel oil have been steadily increased in number; they can supply oil at the rate of 1,000 tons per hour.[56] Excellent drinking water at 4 francs per ton can be supplied at the rate of 110 tons per hour.

Constant improvements are made on the port and wharves, for which 45 million francs ($1,295,000) was budgeted in 1939 alone. Actual shipping put in during 1937 amounted to 4,156,000 registered tonnage in French ships and 13,436,000 in foreign ships. Even the biggest ships can be accommodated along the extensive wharves.[57] In addition, Dakar is provided with excellent airfields and a hydroplane base; being only 1,620 miles from Natal, Brazil, it is the jumping-off place for southern trans-Atlantic aviation. Direct air service is maintained with France and with important cities on the coast and in the interior. Thus from every point of view Dakar is the key city in France's African empire.

Even the present war has not stopped Dakar's expansion. In 1940 the dam in the direction of the protecting island of Goree was to be doubled in length, thus making a vast outer harbor where scores of ships could find safe and easy anchorage. Obviously the French have centered in Dakar their African imperial ambitions; hence it is not surprising they are so determined to hold it against all comers and have given it every conceivable military protection.

Transportation and production

Production is vitally affected by transportation facilities. In remote areas much transport is still done by carriers, and there the marketing of crops results in a serious drain on the labor available for farming, especially in the busy season. Besides, the native dislikes this form of work, and (in proportion to the value of the produce) there is a limit to the distance over which he will carry a head load of it. Thus few peanuts are grown in areas remote from suitable forms of transport. The advent of a railway or motor road, therefore, may cause an increase in peanut production. The labor used for road building, however, is also taken from farm work. For this reason increasing use is made of road-building equipment.

Present facilities

From the principal ports railroads run into the interior, connecting at the railheads with autoroads or - as in the case of the line from Dakar to Kayes and Bamako-Koulikoro - with inland riverways. In 1938 there were 2,409 miles of railways, of which the Dakar-Niger line alone accounts for 1,000 miles. Railways are a government enterprise, and show no capitalization.

A vast network of highways and roads has been constructed, chiefly since 1918. In 1938 there were 46,000 miles of such roads, 10,750 miles of which were surfaced. Numerous secondary roads and trails give access to the most remote regions. Although desert traffic is still largely by camel caravan, an autoroad from Algeria already exists; and a railroad to the Niger, making an inverted "Y" with the ends of the two branches touching the river at Ségou and at Niamey, has been projected.[58]

[56] In 1933 ships were supplied with 297,000 tons; in 1937 with 790,000. In 1937 364,000 tons of coal were supplied.

[57] *Journal de la Marine Marchande*, May 12, 1938. Depth at the jetties ranges from 21 to 28 feet; in the inner roadstead it is 33 feet.

[58] *World Economic Notes*, U. S. Department of Commerce, June 7, 1941.

GOVERNMENT POLICIES AND ASSISTANCE

In contrast to the flexibility of British colonial policy, that of the French used to be circumscribed, predetermined, bureaucratic, and literal. Colonies were to be "assimilated," become parts of France, exchange their native culture for French civilization, and be governed like French *départements*. It was an effort to assimilate Stone-Age natives to nineteenth-century Frenchmen.

This simple theory, however, worked out badly in practice. It destroyed native society without building it over into a French society. It proved worse than "domination," and became either a cloak for stagnation or a hindrance to normal development in practice. At the turn of the century these facts began to be recognized by leading Frenchmen, and a new theory was developed, called "association," emphasizing the essential duality of the colonial task. The colonies had to be looked upon as living societies themselves, "compelled to consider the interests of the motherland, of course, but still developing apart from, and even differently to, that motherland."[59]

The most effective apostle of this new doctrine was Sarraut. He advocated the *mise en valeur*, or full development of the colonies in their human as well as their natural resources. For the first time the French recognized a native point of view. When Sarraut became minister of colonies in 1920 he had a chance to put the new theory into practice. In April 1921 a general program of development was laid down which has since been accepted as the basis of colonial development. It was soon clear that although in administrative and cultural matters the colonies had received a new charter of freedom - a greater degree of autonomy and decentralization than they had ever known before - in economic matters they were securely tied to France's needs. "Our colonies must be centers of production and no longer museums of specimens," said Sarraut, and development had to be made efficient and coordinated. Each colony had to produce a maximum of such commodities as it was specially suited to produce and as the French Empire needed.[60]

This policy would benefit both France and the native society, it was argued. Actually it made colonial economy subordinate to that of France. Industrial development and tariff laws remained essentially central matters and had to be determined by the needs of the metropolis. If interests conflict, those of the colony are repressed. In practice, then, the accepted new theory of colonial policy leads to a continuation of the old policy, with a more extensive consideration of native ends and a deference to the native point of view.

In French West Africa this policy has led to a program of developing the country along the lines of tropical agriculture in native hands, with a special emphasis in each colony: peanuts in Senegal, cotton in Soudan, livestock in Niger and Mauretania, cocoa and timber in Ivory Coast, palm oil in Dahomey, and - after the decline of rubber - bananas in French Guinea, though here native enterprise failed and was replaced by European. This policy has given more ordered development to French West Africa than to any other French colony. The keystone to this progress was adequate transportation.

Railways and roads opened up the interior; irrigation projects made available the vast country of the Middle Niger for "multiculture"; but labor scarcity held up,

[59] Roberts, Stephen H., *History of French Colonial Policy*, v. I, p. 72, London, 1929.

[60] Sarraut, A., *La Mise en Valeur des Colonies Françaises*, Paris, 1923.

and is still holding up, the full development of French West Africa's resources. Here France obstructed, rather than aided in, the solution of the problem by its heavy drafting of native men for military service from 1906 through the first World War. Native stock left behind declined in quality as well as quantity, and development of the country - all but natives having proven unable to stand the strain of physical labor under its trying climate - has thus been strictly limited. This check upon their plans has forced the French to give increased attention to the problem of improving the natives' physical condition by better diet, sanitation, and the fight against infant mortality and tropical diseases, especially sleeping-sickness and leprosy. An extensive medical service is seeking to rebuild a vigorous native population.[61]

This effort goes hand in hand with the steady pressure toward improvement of native agriculture, especially in combating soil exhaustion and wasteful cultivation.[62] It also fits in with the programs for improving quality and quantity of all important crops, as well as with the educational and social programs. The most important and successful instruments used for the latter are the Provident Societies.

Provident Societies

Provident Societies originated in the early twenties as agricultural credit organizations. They quickly developed into agricultural cooperatives with functions far beyond those of money lending. A Provident Society is formed at the district administrator's office. All native cultivators and stockmen are obligatory members; and since practically everybody farms, membership automatically includes most adult natives, excluding women and children. Dues are 1 franc per person in each member's family. At the end of 1937 there were 102 such societies (there are 108 administrative "circles"), with 5,363,744 members, Ivory Coast topping the list with 25 societies counting 1,464,439 members. Income from dues alone was 9,861,455 francs, total income 44,703,878 francs, natural assets valued at 79,380,362 francs. Expenditures were 40,683,411 francs in money, and a value of 65,200,155 francs in natural products.

The Societies distributed in Senegal alone 48,464 tons of peanut seeds; 3,538 tons of specially selected seeds were distributed which were capable of yielding 880 pounds per acre. In Ivory Coast 3,410,500 coffee plants were distributed, and 157,000 cocoa trees. Numerous parasite-destroying installations went around the plantations. Rice cultivation was actively promoted in Senegal and French Guinea; everywhere seeds of millet, cowpeas, corn, pigeon peas, rice, and cassava cuttings were distributed, especially in Niger; and early-maturing crops were popularized. By establishing nurseries, distribution of seeds and seedlings, and by maintaining foresters, as well as by collective plantings, the Societies aided greatly in reforestation. Many artesian wells were dug with their equipment.[63] A new interest in dairy products led to the establishment of several little dairies; the livestock industry improved its methods of butchering and of drying hides. Innumerable motor-presses and crushers, mills, etc., aided the oilseed and food industry; and better methods in the preparation, handling, and marketing of export products were widely popularized.

[61] *L'Exportateur Français*, December 28, 1939.

[62] Hall, Sir A. Daniel, *The Improvement of Native Agriculture in Relation to Population and Public Health*, London, 1936.

[63] In 1938, 1,800 of these wells had already been dug. Farm implements were also distributed: in 1936 alone 3,657, valued at 792,000 francs. (Consular report from Paris, March 29, 1938.)

This sketch of the activities of the Provident Societies shows how essential their function is in the country's economic development. The suggestions come from the Government's agricultural service with its many experiment stations and from the Chambers of Commerce or other organized groups in the export trade. The administrator sees to it that finances remain sound. But the greatest value of the Societies may yet prove to be their social and moral influence in restoring to native life solidarity, cooperation, and security.

Agricultural Credit

Experiments in the twenties proved that the natives were not successful in the management of their own credit societies or banks. Accordingly in June 1931 the local banks were abolished and a central bank, as a public institution, was established in the five principal colonies (Senegal, Soudan, French Guinea, Ivory Coast, and Dahomey).

These banks have unlimited credit with the Government, have full banking power, and are administered by a board of colonial officials presided over by the colony's secretary-general. The boards include a representative of the Bank of West Africa, a leading planter elected by agricultural interests, and two native notables chosen by the provincial governor. A central commission at Dakar examines requests for advances by the banks. Short-, medium-, and long-term loans are granted to organizations such as the Provident Societies, and to individual agriculturists under certain conditions. Interest is set at 6 percent for short-term credit, 5 percent for medium-term credit, and 4 percent - in special cases 2 percent - for long-term loans. The total of all loans from 1932 to 1936 was only 45 million francs.

Agricultural Education

Agricultural education, apart from that achieved through the Provident Societies, is centered in the experiment stations located in each strategic area, so that specialization on particular crops can be achieved, without, of course, neglecting other cultures. In Bambay, Senegal, the emphasis is on peanuts; La Me in Ivory Coast and Tobe in Dahomey specialize on oil palms; the station at Segou in Soudan is devoted to cotton. In Niger a veterinary service maintains two control stations on the border and several vaccination centers. All cattle exported must be inspected, vaccinated, and certified. At the agricultural stations young natives are taught the best methods of cultivation and sent out to teach their countrymen, in turn; chiefly by example. The old method of lecturing did not work.

The new point of view is that every idea must be tested first, and seen from the farmer's angle. The native must do all the work himself, and so regards it differently than does one who pays for labor. Thus he often prefers a slow method to one that is quicker but involves harder work for a shorter time.

In all these ways the *mise en valeur* policy is implemented. The Government has gradually learned the vast difference between a theoretically rational plan for the development of a country's resources and the intricate psychological and cultural factors that enter into the situation as soon as such a plan is to be carried out in practice. It now takes these imponderables into account.

Financial Policy

There is a federal budget as well as a special budget for each colony, and for Dakar and the Port of Dakar. These interlock in such complicated ways that the *Annuaire Statistique* has found it necessary to publish a consolidated table of revenues and expenditures from which mere bookkeeping transactions have been eliminated. For 1936 the total receipts were $42,352,400; expenditures were $45,115,900; $6,046,800 of borrowed money went into tangible public works. A heavy reserve fund is maintained to cover deficits, and for 1940 it was expected that the federal budget alone would be able to place 1¼ million dollars in reserve.[64]

Six French loans have been made to the French West African Government; the largest of these was a loan of 1.69 billion francs, issued during the depression years at rates of from 4 to 5½ percent interest, which helped the country back on its feet. The interest payable on all outstanding public debts in 1938 was 78,375,000 francs.

Fiscal Policy

A bewildering variety of import duties (regardless of importing country), customs (on goods from non-French countries only), export duties (on gold, gum, and shelled peanuts, for instance), sales taxes, 'circulation' taxes, surtaxes on salt, cigars, and cigarettes, and special taxes weigh down the economic life of French West Africa; but it is from these sources that the Government receives most of its funds for the various programs of development. Tax pressure frequently affects adversely the trade in particular commodities, so that frequent changes are necessary, and no figures for any particular time represent a stable picture. In addition, certain products are protected by export premiums - in 1935, for instance, sisal, cassava, coffee, and bananas were so assisted. For high-grade coffee the premium was maintained until 1940.[65]

After the fall of France export duties on livestock were greatly increased; a duty on oilseed cakes was established; the sales tax on exports from Soudan was increased from 1¼ to 3 percent (this was reversed for peanuts in February 1941) and the tax on gold was kept at 3.15 percent. Circulation taxes on cola nuts were doubled in Ivory Coast and French Guinea; but Vichy disapproved of a proposal to increase import surtaxes by a change-over from ad valorem to specific rates. Little is overlooked in this fiscal program; since October 1938 even serums and vaccines have been subject to import duty and surtax.

This emphasis on commodity taxation is intelligible if we consider the population, the vast majority of whom have no money income worth taxing. At the same time it emphasizes the fact that colonial governments are caught between the often conflicting interests of big business in the home country and the orderly economic development of the country in their charge.

War Measures

Even before the war export prohibitions were established (except for France as the country of destination) for hides and skins, wool, cotton, flax and linen, hemp

[64] *West Africa*, January 27, 1940. Article by P. E. Cusden.

[65] *Foreign Commerce Weekly*, February 1, 1941.

jute and other fibers, rags, and scrap iron. Since the outbreak of the war these prohibitions have greatly increased. New impetus has been given to the development of transportation and communication. In 1940 some 5,300 miles of new tracks were to be marked out by troops and labor camps, and existing roads were to be improved.

Production was to be intensified, especially that of peanuts, cotton, and sisal. Loans were issued to Provident Societies for the purchase of seed. All available lands capable of yielding 135 pounds of cotton per acre were to be reserved for cotton, but food crops were not to be neglected. Labor "will be placed at the disposal of plantation managers" for sisal cultivation.[66]

Advisory committees were formed in the major centers for the organization of agricultural production. France, cut off from other sources, fell back heavily on the colonies she could still keep in touch with, and took all she could of the abundant 1939 production in French West Africa.[67]

Trade Controls

In addition to its agricultural and fiscal policies the administration employs a policy of trade controls which seeks to improve the quality of commodities exported, and so indirectly to raise production standards. A good example is provided by the regulations issued in June, August, and October 1937 by the Government of Ivory Coast. These regulations set standards for various grades of cotton, which must also be marked as to place of origin, and determine requirements for cocoa beans, rubber, palm kernels, palm oil, shea nuts and shea butter, rice, cola nuts, birdlime, and kapok - for the last even including details concerning baling and packing.[68] Similar regulations in French Guinea fixed the varieties of coffee which may be exported from that colony.[69] For the inspection of such products a "verification" tax is charged ranging from 5 francs per ton for honey to 25 francs for orange oil.

Private Enterprise

Private enterprise has on the whole cooperated with the Government's economic policies. In the major towns are Chambers of Commerce and often Chambers of Agriculture, and whole industries, like those of cotton and bananas, are organized for improvements in the production, quality, preparation, marketing, and shipping of their product. In French Guinea a Conakry Chamber of Commerce agency studies all export products with the object of standardizing them and giving Guinea products a high and stable reputation. Their success with orange oil is notable. Such agencies provide money and personnel for research and cooperate with the Government agencies with very satisfactory results.

[66] *La Presse Coloniale*, March 21, 1940.

[67] *L'Exportateur Français*, December 28, 1939, reported for the first 9 months of 1939 a total trade of 932,000 tons (as compared with 876,000 in the corresponding period of 1938), valued at $31,630,000 ($30,680,000 in 1938). All major exports except lumber showed heavy increases due to the closing of the German market.

[68] *Journal Officiel, Côte d'Ivoire*, January 15, 1938.

[69] *Journal Officiel, Guinea Française*, December 15, 1937.

Conclusion

Today, as in ages past, French West Africa presents an almost self-sufficient native economy. Of its 1,160 million acres, only 18.5 million are under cultivation, of which 98 percent represents native agriculture and barely 2 percent (353,000) European concessions. Production for export is only one-tenth of that for home consumption and local barter. There are no modern industries of any importance; the country lives on its natural and agricultural resources alone.

In spite of all efforts toward the *mise en valeur* of this tropical territory, it supplies France's needs to an appreciable degree only in oilseeds, cabinet woods, and cocoa. Promising for the near future are coffee and cola nuts, but cotton production, on which France pinned such high hopes, is still negligible in comparison with French requirements.

Except for its trade with France, which takes four-fifths of the country's exports and supplies two-thirds of its imports, its significance in international trade is still slight.

The United States takes only 4 percent of French West Africa's exports of tropical products, and provides 6 percent of its imports - chiefly petroleum products, leaf-tobacco, and manufactured goods. The combined value of these imports and exports was estimated in 1938 at only 4.5 million dollars.

To Americans the country's chief significance at present is strategic, because of the proximity to Brazil of its great sea and air base, Dakar.

French rule in this African colony may be described as benevolent despotism, motivated largely by economic self-interest. It has protected and secured the native's right to the land on which he toils; it teaches him, chiefly by example, how to improve his agriculture and to prepare his products for the export market; it gives him opportunity to raise his standard of living; and it has provided a new form of community cooperation in the Provident Societies, with their compulsory memberships and their far-reaching economic activities. On the other hand, it has imposed burdens of taxation and conscription which the native often finds oppressive.

Shortage of labor is the country's chief handicap; hence of late the French have been striving to conserve both human and material resources. In contact with western civilization the native's own culture is largely destroyed, and many Africans are psychologically uprooted. Through agricultural aid and education the French are seeking to adjust native life primarily to the needs of France, and only future decades can tell whether they will succeed.

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